

An A N S W E R, Paragraph by Paragraph, to \* *A Report of the present State of the Great Level of the Fens, call'd Bedford-Level, and of the Port of Lynn, and of the River Ouse, &c.*

And also \* a Scheme propos'd by Mr. Charles Bridgman, for the effectual Draining those Fens, and reinstating that Harbour or Port.

Drawn from Authentick Testimonies of the State of that Level, Harbour and River, before and since *Denver* Dam and Sluices were built, &c. and from a Survey made in the Years 1723, 1724.

*Fluminaq; obliquis cinxit declivia Ripis. Ovid. Crea.*

(a.)



H A T the great Level of the Fens has for many Years past been incommoded with Waters, is true; but that it is more so since *Denver* Sluices were erected cross the River of *Great Ouse* than it was before, is as true. And Experience hath shewn, that the mistaken Notion of erecting those Sluices was the chief Cause of the silting up the *Ouse*, and the Gools and Outfalls, by which the Waters of the Level, Marshland, and Hundreds, and Parts adjacent, were formerly drain'd and carried off through that River by *Lynn* to Sea.

This Silting up of the River is the Cause of the Waters being hemm'd into the Fens, and breaking the Banks that were made by the Corporation of Adventurers, with Hopes by them to prevent the Damages that mistaken Notion has brought upon Draining, as well as upon Navigation, so much and so long complained of by the Magistrates of *Lynn*.

And the Prejudices to both increasing, this Author ought not to have deliver'd his Notions in general Terms, but should have said what the State of the Fens and of the Port of *Lynn* were before the Erection of *Denver* Dam and Sluices. He should have told what Advantages or Disadvantages those Sluices have been to Navigation or Draining. But this he having artfully eluded, we shall endeavour to supply.

(b.) That so a right Judgment may be form'd, whether a natural Method (which before the Adventurers artificial Works were executed, made our Harbour and Rivers famous for Navigation, and render'd the Fens highly capable of being drain'd by the common Rules of Draining;) or whether this Projector's probable (only probable) Method for restoring Navigation and Draining, ought to be followed. And here we must observe, that this Author's offering a probable Method to restore Navigation, and to reinstate *Lynn* Harbour or Port, shews that the Harbour and Navigation were good when the Tides had free Admission, and the Freshes their natural Course; sure then the natural Method should be follow'd that did maintain a deep Harbour, rather than an artificial one should be acted over again, that silted the Harbour up, and was prejudicial to Navigation.

The Erecting of *Denver* Sluices was a probable Method for Draining; but being by Practice found destructive of it, and Navigation too, sure such probable Methods (after such fatal Experience had) are not to be listned to.

(c.) Especially as such Methods are propos'd by one who partially evades giving any Account of the *ancient* (tolerable good, not) drown'd Condition of the Fens before the Erection of *Denver* Sluices, or of the Steps taken by the Adventurers for Drain-



\* A REPORT of the present State of the Great Level of the Fens, called *Bedford-Level*, and of the Port of *Lynn*; and of the Rivers *Ouse* and *Nean*, the two great Sewers of that Country.

With Considerations on the Scheme propos'd by the Corporation of *Lynn* for Draining the said Fens, and Reinstating that Harbour.

And also a \* Scheme humbly propos'd for the effectual Draining those Fens, and Reinstating that Harbour or Port: From a Survey thereof made in *August*, 1724. by Mr. *Charles Bridgman*.

To the Right Honourable the Earl of *LINCOLN*.

My LORD,

(a.)



THE great Level of the Fens, called *Bedford-Level*, having for many Years past been greatly incommoded with Waters, to the very great Damage of that Country, occasion'd by the Mouths of their Rivers *Ouse* and *Nean* being near Silted up for many Miles from Sea; in Consequence of which, the great Land-Floods which pass through this Country to Sea, not having sufficient and speedy Passage to their Outfalls, (which lye at a very great Distance, and as before observed, near Silted up) break down their Banks, and lay great Part of the said Fens under Water; and the Sea also having thus thrown its Sands into the Mouths of the aforesaid Rivers, has quite silted up their Sluices, by which they should drain off their Soak. And the Waters being thus hemm'd in, and these Evils growing daily upon them, they are returning as fast as possible, to their old drowned State: So that if immediate Care be not taken to redress, if possible, these Evils, the great Level of the Fens, the Port of *Lynn*, at the Mouth of the River *Ouse*, and the Navigation to the Town of *Wisbech*, on the River *Nean*, together with the Navigation of lesser Vessels up those Rivers within Land, into the several Countries that border on the Fens, and through which those Rivers pass, will in a very little Time be entirely lost.

(b.) In Obedience therefore to your Lordship's Commands, I shall here endeavour to shew in as short a Manner as I am able, the principal Causes of these Misfortunes, and from thence examine the Probability of the Success of the *Lynn* Scheme; and after that is dispatch'd, shew what Methods, I humbly conceive, may probably restore the Harbour of *Lynn*, and effectually drain the Fens, and thereby perpetuate the former, and secure the latter to Posterity.

(c.) In the Pursuit of this Undertaking, I presume it will be unnecessary to trouble your Lordship with a long History of the ancient drowned Condition of these Fens, or of the particular Steps taken since that Time, by the Corporation of Adventurers for draining



Draining the same, to avoid the *true* (not false) Conclusions that every impartial Enquirer will naturally make. One, who not knowing distinctly what he says, speaks for us, saying—"The Fens and the Port of *Lynn* are very different now to what they were then—Which is the very thing we complain of. We say then they were in good Condition—Now they are almost lost. Therefore we can't think how it comes in his Head to endeavour to shew the Insufficiency of the *Lynn* Scheme, (as he calls it) which is to give the River *Ouse* the Course it had then, when Navigation and Draining were in a good State. We are sure, that while he shews the Insufficiency of the Scheme the Adventurers executed, (which he does when he occasionally, as Necessity shall require, takes notice of the drowned State of the Fens) he at the same time shews the Insufficiency of his own, which is to sluice our great River at *Lynn*, and execute the Adventurers mistaken Notion over again, and by doing it so near the Port, proceed from bad to worse; so that as *Denver* Sluices destroy'd Draining, and were very prejudicial to Navigation, these Sluices would immediately destroy both, as we shall make appear in our Answer to each Paragraph of his Project which follows.

*Article 1.* The great Cause of the Decay of *Lynn* Harbour, in Consequence whereof the Fens could not drain off their Waters, was principally owing to the Tides being shut out of their ancient Receptacles, *viz.* *Ouse, Stoke, Brandon, Mildenhall, and Grant* Rivers, by the Dam and Sluices erected at *Denver*. And this evidently appears, in that just before those Sluices were built, the Tides made clean Work in *Lynn* Haven, and maintain'd the River and Chancel of sufficient Width and Depth for Navigation and Draining. — Soon after those were erected, these grew up, and became incapable of Draining, and precarious to Navigation. But this Author maintaining an Opinion destructive of Navigation, against the Rules of Draining, against the Practice of all the great Rivers in the World, and against the Laws of his Country: *viz.* That the free Admission of the Tides is the Cause of the Decay of *Lynn* Harbour, &c. we in the Sequel shall prove, that not the free Admission of the Tides, but the obstructing them, the stopping them out of their natural Receptacles, and the depriving *Lynn* Harbour of the ancient great Stock of Back-water, was the true Cause of the Decay of that Harbour.

2. The Sand or Silt in the great Bay or Estuary, is of no other Looseness, or Subtleness, than are the Sands in the Mouths of the *Thames, Humber, &c.* — Nor did the Tides here (before *Denver* Sluices were Built, and their Course was diverted and obstructed) leave the bottom of this Bay dry, any otherwise than the Tides do the numerous Sands in the *Thames, Humber, &c.* when retreated to Sea, as the Maps of the *Thames, Humber, and Ouse*, manifestly shew.

Page 5.

3—4. And indeed the Tide here in its Flux hath not so vast a Tract of loose Silt or Sand to rub over before it approaches *Lynn* Harbour, as the Flux of the Tide up the *Thames* hath before it approaches *London*; yet that River is not choaked up with the vast Quantity of Silt the Flood in its Journey tears up and brings along with it—And that the *Ouse* was not choak'd with any such Silt before the Adventureship, Sir *Cornelius Vermuyden* their own Engineer asserts, and thereby fully confutes all that is insinuated in these two Paragraphs. — "*Welland* (saith he) and *Wisbech* Outfalls are choak'd every Summer, but the Outfall of *Lynn* hath sufficient Water to keep open his Channel; and altho' in the Summer the Sands in *Lynn-Haven* overcome the Ebbs somewhat, yet they do not lyé long, but the first Land-Waters or next Spring-Tides carry them away again". This Gentleman (though he was the Contriver of the Works for stopping and diverting old Courses) owns the mighty Power and Efficacy, not only of the Land-Floods, tho' they might not happen above once in a Year or two; but also that of the Spring-Tides, when free from Restraint; of which above 350 do constantly visit the Port of *Lynn*, and the Rivers thereunto belonging, within the Compass of a single Year.

5. And the Reflux of the Tides was heretofore so strong, that they did not only scour out the Sands (brought in by the Flux) back again to Sea, but enlarged and deepened the River, Haven, and Channel, (as may appear by the authentick Testimonies



draining the same, or of Works done for that Purpose before them, by Bishop *Morton*, the Earl of *Bedford*, or others, it being entirely unnecessary: Besides, the false Conclusions some People may draw from thence, the present State of the Fens, the Port of *Lynn*, and these Rivers, being very different from what they were then; so that I shall occasionally, in the Pursuit of this Relation, as Necessity shall require, in order to the forming a true Judgment on the said *Lynn* Scheme, take Notice of the then drowned Condition of the Fens, and of the Benefit of their Works for Draining, as well as of their Insufficiency to perpetuate it: As also observe, that the Destruction or Decay of some of their Works, of late Years, has much contributed to the present Disorder thereof. The First Thing to be considered is,

*The Two grand Causes of the Decay of Lynn Harbour, and of the Mouths of the Rivers Ouse and Nean.*

*Article 1.* The first great Cause of the Decay of *Lynn* Harbour, and that the Fens cannot drain off their Waters, is from the Tides. And that evidently appears from a due Observation of the wretched Work they make in that Harbour, and in the Mouths of those Rivers, Twice in every Twenty-four Hours. But there being People of a different Opinion, it will here be necessary, by some Observations, to prove in what Manner the Tides work those ill Effects on the Port of *Lynn*, and the Rivers before-mentioned, which I shall endeavour to do as follows.

2. The Great Bay or Estuary, that lies between the Counties of *Lincoln* and *Norfolk*; and into which the Rivers *Ouse* and *Nean* empty themselves, has by Nature a very loose Bottom, of perhaps the most subtle or small Sand or Silt that can be produced. And it must be observed, that the Tide, in its Retreat, leaves the Bottom of this Bay dry for at least Ten Miles below *Lynn*, on the *Norfolk* Side of it; and also leaves it in the same Manner from the Mouth of the River *Nean*, on the *Lincolnshire* Side; (except some small uncertain Channels, not deep enough to carry the least Boat, and which Channels are varied by the Power every Tide has upon this light Sand, or Silt;) so that every Ebb here is left a great Sandy Country, which they call the *Wasbes*.

3. The Tide in its Flux has this vast Tract of loose Silt or Sand to rub over, before it approaches *Lynn* Harbour, and the Mouths of the before-mentioned Rivers; and in its Journey thither, tears up, and brings vast Quantities of this Silt along with it, that these Tide-waters may justly be compared for their Foulness to violent and sudden Land-Floods, that hurry down with Precipitation from a Loamy Country. And 'tis allowed, that within the Memory of Man, *Lynn* Harbour is Silted up at least Ten or Twelve Feet Perpendicular; and from thence upward, the Mouth of the *Ouse* is likewise silted up as much to *Ebrink*, near *Germans*, which is Seven Miles: That in most Parts of the River, between these Places of *Lynn* and *Ebrink*, at every Ebb there is not left Three Inches of Water in Depth; and the Case is much worse on the *Lincolnshire* Side of the Bay, for some Miles below *Guntborp* Sluice, up to the Town of *Wisbech*, on the River *Nean*.

4. Above the before-mentioned Places, *Germans* on the River *Ouse* and *Wisbech*, on the River *Nean*, as far as the Tides extend themselves up these Rivers, 'tis apparent they have likewise lodged their Sands to so great a Degree, that they have quite stopp'd up all the Sluices by which the Fens should empty their Waters into those Rivers.

5. If therefore it be granted that *Lynn* Harbour, and the Mouths of the before-mentioned Rivers are silted up, and that by Sands brought in by the Tides, it is self-evident that their Reflux is too weak to carry the Sands back to Sea, their remaining in that



monies of the Commissioners of Sewers, the Petitions of Marshland, Mr. Richard Atkins, &c. until the Works of the Adventurers weakened the said Reflux; and therefore when these Works are laid aside, and the Tides and Freshes are permitted to have their ancient Course, they will seperately, and in Conjunction, work the Effects they formerly did, and preserve a sufficient Channel.

6. Many Proofs may be brought, that the free Admission of the Tides, is the natural and principal Means of preserving the Outfalls of Rivers, that lie upon foul Seas. By such free Admission of the Tides, the Channels of *Thames*, *Humber*, &c. are preserv'd; as was the *Ouse*, till the Adventurership. —How unnatural and pernicious then must those Works of theirs be, that gave Occasion to its being filted up Ten Feet in Two Years Time, after the said Works were made?

7—8. If whilst the Sluices were standing cross the old Course of the *Ouse* at *Salter's Lode*, there were no Sands found in that River above them, but on the contrary, it it was very deep: Then it is evident, (that before ever there were any Sluices built, or Hundred Foot Drain cut) the free Admission of the Tides with their Reflux, in Conjunction with the Waters of the *Old Ouse* by *Harrimere*, and with the Waters of the other Rivers, would not suffer any Sand to lodge in those Rivers; but on the contrary, preserv'd a very deep Channel, and that not only above *Denverbitb* toward *Harrimere*, but below that Place, where the Sluices were afterward built, even to Sea. This the Commissioners of Sewers testify; they observ'd, that there was Ten Feet Fall from the Surface of the Fens at *Salter's Lode*, to Low-water Mark in the River. The great Depth of the ancient *Sluice* of *Rightforth-Lode*, near *Stowbridge*, proves there was equal Depth in the River there. *Knights-Gool* below *Germans*, the famous Drain for Marshland, proves the River was very deep there, Ships rode in Twelve Feet Water at Low-water in *Lynn* Haven, and Sailed up and down between the Sea and *Lynn*, as well on the Neip, as on the Spring-tides: Therefore the Harbour and Channel were also very deep, when the Tides had free Admission. But immediately after they were obstructed, and a free Admission was refused them, the River, Haven and Channel to Sea, all below the Sluices, were so choaked up with Sand, that their Bottoms were rais'd so High, that the Fens could not run off their Waters, and were therefore overflown, and Navigation was very much prejudiced. Since the blowing up of the Sluices, the Freshes descend the Hundred Foot Drain, take an awkward Course into the Rivers of the *South Level*, and choak them up, and the Spring-tides which put up into them, are over-rid, and kept back by the Ebb of the Hundred Foot, so that they cannot return out of those Rivers to Seaward, for Three or-Four Days together, in which Time they drop their Silt as far as they flow: And if this be not prevented, by giving the Tides and Freshes their old Course again, not only the Fens, but the Navigation between *Lynn* and *Cambridge*, will in few Years be wholly lost.

9—10—11. This Author says, *Lynn* Harbour was once a narrow Channel, and then it was a good one.—But on the contrary, Mr. Atkins, a Commissioner of Sewers, the most nice Observer of the Fens, and of the Rivers taking their Course through them, says, (*A. D.* 1618,) —“That the abundance of fresh Waters, making their Passage by this Course, gave the Sea a most spacious Inlet, the one preparing the way, and the other maintaining it with much Increase. And,

Upon a View of the Commissioners of Sewers, taken the 14th of *August*, 1618, “They found the River *Ouse*, from *Salter's Lode*, to the Outfal of *Lynn*, a very large and quick River, much increas'd in *Depth* and *Breadth*, since the Decay of the Two Outfalls of *Welland* and *Nene*. And,

*Sir Clement Edmunds*, who was one of the Clerks of the Privy-Council, and was sent in 1619, on Purpose to view the Outfalls, and to make his Report to their Lordships, writes thus, —“The Outfal of the River *Ouse* is Ample and Great, and gives large Passage for the fresh Waters descending from the Inland Countries; but then also too for the Sea, which cometh in with such a Tide, especially if a *Northberly* Wind blow, and meet with a Land-flood, that divers Towns in Marsh-land, are in danger of being overflow'd; and therefore by their Petition desired, that the Haven might be straitned in some Place near *Lynn*, to keep out the Sea; alledging, that the said Haven had in the Memory of Man, been narrower and shallower than now it is, being of late grown to that *Breadth* and *Depth*, by the great Fall of the fresh Waters, that have left their ancient Channels to follow that Stream.

These



## A Scheme for Draining the Fens, &c.

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Harbour and Rivers, being a convincing Proof to the Contrary. Neither has the Weight and Force of the Freshes in the wettest Seasons, that empty themselves into that Bay through these Rivers, (the grand Sewers of several Upland-Countries,) in Conjunction with such Reflux, been able to drive them thence, so as to preserve a sufficient Channel.

6. Many more Proofs may be brought, that the free Admission of the Tides up those Rivers, are the Ruin of them, and the Occasion of the present bad Condition of the Fens; but for brevity Sake, I shall only mention Two.

7. The first is, That while the Sluices were standing cross the old Course of the Ouse at *Salter's-Load*, by which Means the Tides were stopped from running up that Course of the River towards *Ely*, there were no Sands found in that River above the Sluices; but on the contrary, it was very deep, and the Water then flowed from Bank to Bank, as may be proved by the Testimony of every Body that knew that River before those Sluices were down. But since they fell (which was but Twelve Years since) and the Tides have had free Passage up that Part of the River above that Sluice, it is prodigiously filted up as far as the Tide Waters go.

8. The other Proof that the free Passage of the Tides only are the Cause of the Decay of those Rivers is, that from *Little-Port-Chair* (beyond which Place the Tides do not flow with any Force) up to *Ely*, and above it into the River *Grant*; the Ouse by the Current and Weight of its Freshes, still maintains it self of a sufficient Depth for Navigation, notwithstanding its present bad Condition, from its Waters being spread over great Part of the *South Level*, through which it passes, which shall be further spoke to hereafter: That Part of the River being no where between the Two last mentioned Places, less than Four Foot deep, and in most from Five to Eight, and in some Places Nine and Ten; as I proved by sounding that River every Furlong, when I attended your Lordship on a Survey of the Fens in *August* last.

9. The Second great Cause of the filting up of *Lynn Harbour*, and of the River *Ouse*, is also from the Admission of the Tides up that River, but from a different bad Effect they have, than that of bringing up the Sands out of the Bay, which will appear as follows.

10. *Lynn Harbour* was once a narrow Channel, and then it was a good one, and the River *Ouse* up from thence, when confin'd within proper Bounds, was also deep. But in Process of Time, that Harbour is become prodigiously Wide, and most Parts of the River *Ouse*, up from thence almost to *Germans* (which is Seven Miles) is said to be in some Places near a Mile Broad, and the continual Increase of the Width of this Harbour, and of this Part of the River, will be readily granted by every body that knows them. And this is plainly owing to the violent Motion and Weight of the Tides, which have wore them to this monstrous Width, the *Western Bank* of that Harbour and River on the Marsh-Land Side, being a loose infirm Sand.

11. 'Tis evident therefore, that this Ground from Time to Time so washe daway, (which at a very low Computation of but Two Furlongs Wide, and Six Foot Deep, amounts to Eleven Millions of Cube Yards) has very much contributed to choak them up; and in my Opinion has been as great a Prejudice to them, as all the Sands brought out of the Bay by the Tides. For if the Freshes have any Power in wet Seasons to carry down Part of these Sands, as is acknowledged by the Watermen that use that River, this prodigious Magazine of Sands between *Germans* and *Lynn* has been, and still is a proper Matter for them to employ their Force upon; and if so, they conduct them



These Observations demonstrate, that the washing away of the Shores, did not in the least contribute to the silting up of the Channel; for as it grew from *Six to Forty Poles Wide*, before *Denver* Sluices were erected, so in Proportion it increased in its Depth.

And this was effected by a natural Cause; for as the River, by the Action of the Tides and Freshes was made wider, it received greater Quantities of the Tidal-flood, and thereby having more and more Water to Ebb back in the Compass of the Channel, it fell to Sea with such additional Weight, that it necessarily wore the Channel wider and deeper, until *Denver* Sluices put a full Stop to the Flood near *Salters-Lode*, and deprived the Channel of its wonted Stock of Back-water, and from that Moment the Channel began to decay and fill up.

12. The first Part of this Article is answered in Articles 3, 4; to the rest we say, That before *Denver* Sluices and 100 Foot Drain were made, which Works occasion'd the silting up of the Haven and Channel, the Tide of Flood ran full five Hours and a half thro' the Harbour of *Lynn*.

Now in as much as he asserts, That the Tides do not employ in *Lynn* Harbour above three Hours in their Flux, and almost the remaining nine in their Reflux, we must observe and insist upon it, that the Assertion is not true; for if the Flux be 3 Hours and a half, then four Hours will return the same Quantity of Water (which the Tide brought up) to Sea. This Colonel *Dodson* owns, p. 4. So that it is plain, the Reflux (before the Sluices were built) was qualify'd with more Force than the Flux.

We farther observe and insist upon it, That the Freshes alone never did keep open the Outfall of any River lying upon foul Seas, or could keep open the Channel of the River and Haven of *Lynn*; but the Spring-tides in their Reflux did so; and we bring this undeniable Proof of it, viz.

When it was High-Water at *Salters-lode* (where the River was 150 Feet broad, and a Spring-tide rose 12 or 14 Feet high) then was it near half Ebb at *Lynn*, and consequently the Water had slipp'd off from a great Part of those broad Sands so much complain'd of, and was reduced into the Compass of the Low-water Channel; then follow'd that great Head of Water from *Salters-lode*, rais'd to the Height before-mention'd; to which immediately succeeded all the Waters put up into *Stoke*, *Brandon*, *Mildenball*, *Old Ouse*, and *Grant* Rivers, where within twelve Miles of *Cambridge* the Spring-tides used to swell the River *Grant* about four Feet higher than its natural Situation. And this was the Quantity of Back-Water, that with great Weight and Force (follow'd by the Freshes) returning to Sea in the Compass of the Low-water Channel, clear'd all before it, and thereby not only maintain'd, but increas'd the Depth every where in this grand Receptacle, to the Improvement of Navigation and Draining, till *Denver* Sluices were built. The Truth of which appears from the Ships riding in *Lynn-haven*, just before those Sluices were erected, in two Fathom at Low-water, having such strong Ebbs, that they were often forced to moor with a Stream Cable, which is one extraordinary to hold them fast; and the Channels to Seaward were so good, that Ships drawing 13 or 14 Feet Water could sail up and down between the Sea and *Lynn* in the lowest Neap-Tide.

Having prov'd the ancient Goodness of this Outfall, we are now to shew, that contrary to this Author's Assertion, the Freshes had Time to pass to Sea. We (and before us Colonel *Dodson*) have observ'd, that there were Four Hours and a Half in Twelve, for the fresh Waters to run out.

The Freshes or Floods, when they descend from the High-Countries, last not above Three Weeks, or thereabouts, and then falling with great Weight, they meet the Tides, and mixing with the Flux, much of their Waters sink with it the first Four Hours of Ebb. So that the Freshes descend rapidly to Sea almost the whole Eight Hours and a half of the Reflux: And therefore it was, they scour'd out the Silt and Sand with such great Effect, when they made their way to Sea through *Lynn-haven*, to the Improvement of Navigation and Draining. But now, by taking an awkward Course toward *Cambridge*, through the Remains of *Denver* Sluices, they overflow the *South Level*, and will in few Years Time, destroy the valuable Navigation between *Lynn* and *Cambridge*, unless their ancient natural Course be immediately given them, as Colonel *Armstrong* proposes.

13. And we beg Leave further to observe, that the Freshes or Land-floods, whenever they do descend, (and that is but seldom, though we are assured of near as many Spring-tides, as there are Days in the Revolution of one Year) they are so far from being enervated by the Tides, that they are thereby (to continue the Metaphor) render'd



them down to the Mouth of the Bay, where they are met by the Tides, and by them driven back again, and lodged in that Harbour.

12. But before I leave this Subject, I must once more observe, and insist upon it, that the Tides here never have been able in their Reflux, to carry all the Sands they bring up, back again with them to Sea, but apparently feed or fill that River and Harbour, and therefore are no way qualified to scour them out; for that, as the Tides in this Harbour do not employ above the Space of Three Hours in their Flux, and almost the remaining Nine in their Reflux, it's evident, that by such slow Reflux, they lose near two Thirds of the Weight and Force the Flux is qualified with; and consequently by such Inequality of Time, great Quantities of the Sands so brought up by them must be dropp'd; and the Reflux being thus slow, almost two Thirds of their Force and Weight is abated; for which Reasons, the same Quantity of Sands brought in by this stronger Power of the Flux, cannot possibly be drove back again by the weaker Force of the Reflux: So that whatever Part of those Sands so left behind, are at any Time driven out of these Rivers, or *Lynn* Harbour, is by the Power of the Freshes only. And as by Experience 'tis found that these Freshes, as they are now disabled by the Tides, are not qualified to perform that Work effectually; consequently they will be much less so, when a greater Indraught of Tide-waters are admitted, by which a greater Quantity of Sea Silt will be brought in, and lodged, than ever. And by this greater Flux of Tide-waters, a still greater Oppposition made to the Power of the Freshes, that will by this Means be driven still farther back into the Bowels of the Fens, and consequently removed the farther from their Outfal: And this great Increase of Tide-waters being first to be returned to Sea, before the Freshes can descend thither, will employ almost the whole Time of Ebb in their Return; so that in wet Times, when these vast Floods of Freshes are floating in the Fens, and at this great Distance of Twenty-five or Thirty Miles from their Outfal, will have little or no Time to be discharged to Sea, the Flux of the Tide returning upon them, before they can make any Passage down; and by this Means, the Fens will be in a worse Condition than ever, and that consequently the Ruin of the River *Ouse*, and of *Lynn* Harbour, will be more speedy than they would be, if that River was to continue in the State it is in at this Time.

13. I shall here observe one Thing further, that the Freshes having ever been thus enervated by Tides, (which by the *Lynn* Scheme will be much more so) and it fully appearing that the Freshes only are capable of driving the Silt out of this River and Harbour, their descending thus leisurely with the Reflux of the Tides, is the Cause that  
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der'd more nervous and strong. The Tides meet the Freshes, not in an hostile, but in an amicable Manner; and after having join'd their Forces, they make their Passage in one united Body, and bear down all before them to Sea.

14. Here are a River and Haven, which by this Author's own Confession, were Ten or Twelve Feet deeper within the Memory of Man, than now they are; (we say they were so before *Denver* Sluices and the Hundred Foot Drain were made) and we assert there was not in any Part of the Channel, less than a Depth of Four Feet after the Reflux was finished. This River and Haven receive most of the Rivers and Downfalls of Nine or Ten Counties; (equal in Quantity to the Waters of *Thames* or *Humber*) and the Course of this one River is One Hundred and Sixty Miles, if permitted to run its old natural Way, (which is within Ten Miles of the Length of the *Thames*; therefore the River *Ouse*, the Harbour of *Lynn*, and the Channel to Seaward, had the Qualifications requir'd by this Author.——And yet he doth affirm——“But it is evident here are none of these Qualifications, and therefore requires great Help from Art.——That we deny——And this we affirm——Had not the Adventurers, by their Art, (that like *His*, is directly opposite to the Course of Nature, and the Laws of Motion) sluic'd the *Ouse*, and diverted her Waters, by which we lost Ten or Twelve Feet Perpendicular; the said River, Haven, and Channel, would have had at this Day, a Depth proportionable to its Width; a Depth like that in the *Thames*, and in the *Humber*, which is maintain'd in their Channels, by the free Admission of the Tides, and the uninterrupted Passage of the Freshes down their old natural Courses. Had they, the Adventurers, as they were advis'd by the most judicious and experienc'd Men, (instead of using Art to thwart Nature) assisted Nature, by imbanking the Rivers, &c. there had not been any Occasion of Complaint at this Day, either from Seamen or Fenmen. And whereas this Projector proposes to set Sluices cross our River, and says, this Method will appear neither unreasonable, nor unpresidented, if we cast our Eyes cross the Water upon *Holland*: We say, it is unpresidented, and that there are no Sluices cross any such qualify'd River in *Holland*, or elsewhere in the World, for the Preservation of an Outfal. And we say it is unreasonable, because it is contrary to *Magna Charta*, and more than Ten Statutes of this Realm; because it is contrary to all the Rules of Draining;—because it is contrary to the Opinion of Men of Judgment, and ever was condemned by all Artists in these Undertakings;—because *Denver* Sluices destroy'd Draining; and —because these intended Sluices will ruin Draining and Navigation too.

15—16—17—18—19—20—21. The free Admission of the Tides into the River *Ouse*, is so far from being the Destruction of *Lynn* Harbour, as this Author asserts, that they did always keep a deep Channel throughout its whole Course, 'till such Time as *Denver* Sluices were set cross the River, with their Apron Eight Feet higher than the old Bottom thereof, to shut the Tides out of their ancient Receptacles; and till such Time as the fresh Waters of the old *Ouse* were turned down the new *Bedford* River. Then, indeed, immediately then, succeeded the bad Condition of *Lynn* Harbour—For in less than Two Years Time, the Harbour was choaked up with Silt and Sand, where before Ships used to ride in Two Fathoms at Low-water; and the River upwards, as far as those Sluices, (Sixteen Miles from *Lynn*,) underwent the same Fate, from the pernicious Effect of *Denver* Sluices, and the Hundred Foot Cut, though made so far from *Lynn*: Therefore should another new narrow and shallow Cut be made, should another Sluice be set cross the River, at its very Entrance into the Haven, and thereby the Tides be prevented Flowing into the *Ouse* at all, we are not only induced to think, but do peremptorily assert, the Ruin of the Harbour will inevitably follow.

We say, that if the *Thames* or the *Humber* had been treated in the same Manner with our *Ouse*, those Rivers, from their Mouths up, as far as where the Check should be given to the Tides, would have suffered in the same Manner: And this way of Thinking is very Natural and Rational; for at the Mouths of those Rivers are vast Heaps of Sand and Silt, through which the free Admission of the Tides, and as free Remission or Reflux of those Tides, have hitherto maintain'd a deep Channel.

As to the enlarging of the *Ouse*, we propose no other, than the taking away the Brushwood at the several Bridges mentioned in Colonel *Armstrong's* Report, and



they are rendered ineffectual to the scouring out the Mouth of the *Ouse* and *Lynn* Harbour: But if the Freshes can by any Means be defended from the Repulses of their old Enemy the Tide, and instead of being driven back by it into the Bowels of the Fens, to get the entire Possession of the River *Ouse*, quite down to *Lynn* Harbour; and when there, employ their Force without any Opposition of the Tides on that Harbour and Channel, through the *Wash*, into the Deep, when they are emptied of Sea Water, these Freshes will certainly do all for that Harbour and Channel, that can be expected or wish'd.

14. Indeed it would in ordinary Cases be very improper thus to check the Tides, where the Waters are not subject to Silt; which does not happen, where any Bay, Harbour or River, is bottom'd so deep, as to retain a depth of Water below the Reflux when it is finished, or where Nature has qualified a Country with sufficient Currents to discharge its Freshes. But it is evident here are none of these Qualifications, and therefore requires great help from Art. And I humbly hope the Method I shall propose for the Relief of this Country, and *Lynn* Harbour, will neither appear unreasonable, nor unprecedented, if we cast our Eye cross the Water, on our neighbouring Country, the Provinces of *Holland*.

15. Thus much, I humbly hope, is sufficient to shew, that the free Admission of the Tides up these Rivers, is the Destruction of *Lynn* Harbour, and of the Rivers *Ouse* and *Nean*, and consequently the utter Ruin of the Fens.

16. The Port of *Lynn*, and the great Level of the Fens, being in this bad Condition, and that through these ill Consequences of the Tides having free Passage up the Rivers *Ouse* and *Nean*, 'tis to be hoped, from what has been said on that Subject the Corporation of *Lynn*, will be induced to this way of Thinking, contrary to the Scheme proposed, of enlarging the River *Ouse* in order to admit a greater Indraught of Tide-waters, and of taking up the Sluices at the *Hermitage*, near *Erith*, and stopping up the Mouth of *New Bedford* River, and by that Means turning the Waters of the *Ouse*, that come out of the Counties of *Buckingham*, *Bedford* and *Huntingdon*, down the old Course of that River, by *Ely*, &c. which if done, would effectually drown the whole *South* Level of the Fens, as it has ever done, when it went down that Course, and in a little Time compleat the Ruin of *Lynn* Harbour. The Considerations of the Tides being thus dispatched, the next Thing to be considered is;

17. The Inconsistency of the other Part of that Scheme, which proposes to desert the *New Bedford* River, and great Receptacle, and thereby to turn the great Land-Floods down the old Course of the *Ouse*, by *Harrimere*, *Ely*, &c. On a due Consideration of which, it will be necessary to look a little into the ancient drowned Condition of these Fens, that thereby may be shewed the Improperness of their old round-about Channels; and also to take Notice of the principal Works since done in this Country, towards the draining of it.

18. The



and the enlarging the River where Denver Sluices stood, to its ancient Depth and Width. As to this Author's Assertion, that the turning the Waters that come from the Counties of Buckingham, Bedford and Huntingdon, down the old Course of the Ouse, would effectually drown the whole South Level of the Fens, as they have ever done, when they went down that Course; we shall bring the Testimony of Sir Clement Edmunds to confront him. — "The River Ouse, says he, coming along by the Towns of Bedford, Huntingdon, and St. Ives, and so passing down to his Outfall at Lynn, is a goodly fair River throughout; and below Ely downwards runneth with such a Current, that it is absolutely the best Sewer of all that Country. — And the Country all along the River-Side, both in Cambridgeshire and in the Isle, being a very rich Soil, and well inhabited, is not otherwise much troubled with Waters, but in Winter and in time of Floods, occasion'd by the Waters being stopped between Huntingdon and Ely by Weeds, Weers, Hards, &c. and by the Rivers being made shallow against Ely, as in other Parts by Gravels and Fords, which ought to be remov'd for the readier Passage of the Waters in time of Floods. Yet it was generally acknowledged, that the removing of those Impediments, especially near and about Ely, would take away all Navigation and Passage by Boat in Summer-Time, to the great Prejudice of the University and Town of Cambridge; whereof Dr. Richardson, the Vice-Chancellor, being present at the Session at Huntingdon, made earnest Instance that due Consideration might be had.

This Author, and Sir Clement, do point blank contradict one another; we leave it to Judgment, which knew best, and was most likely to speak Truth. — Sir Clement made his Report to the Lords of the Privy-Council 29th of September, 1619. And April 13. 1620. Sir William Ayloff, Bar. and Anthony Thomas, Esq; made their Proposals to the King and Council for the Draining of the Fens. Which were these:

*To have all the King's Lands which shall be recovered, at the Free Rent of 4d. per Acre, more than they used to be let at.*  
*The Princes Lands the same.*  
*Two Thirds of all Subjects Lands drowned the Year round.*  
*Half the Land drowned half the Year round, &c.*  
*To them and their Heirs for ever.*

According to their Demands, we may discover the then Goodness or Badness of the Fens in the South-Level.

*The Demands:*

1. Fens between the River of Grant, East, and the Hards of Milton, Waterbeach and Denny Abbey, West; and so extending West, between the River Ouse on the North, and the hard Land South up to St. Ives Bridge, and Part on the other Side the Ouse between Erith and St. Ives. } One Eighth Part of the Better.  
} One Fourth Part of the Worst.  
*Therefore the Best was in Nature River-Meadow; the Worst drowned but Three Months.*
2. Sobam Fens by Wickham Hards South, ————— One Sixth Part.  
*These Fens were therefore in Nature River-Meadow.*
3. Fens between Mildenhall River and the Great-River up to Har- }  
rimere and the Up-Lands of Isleham, Fordham, and Sobam. } One Fourth.  
*Therefore drowned but Three Months in Winter.*
4. Fens between Brandon River North, Mildenhall River South, and }  
Littleport Fen West. } One Third.  
*Therefore drowned about Three Months.*
5. Fens between Stoke River North, and Brandon River South. — One Fourth.
6. Fens on the North Side of Stoke River from Stoke-Bridge to the }  
great River between Helgay and Stoke. } One Fourth.  
*Therefore drowned but Three Months in Winter.*
7. Sutton and Haddenham Fens, ————— One Eighth.  
*Therefore in Nature River-Meadow.*

These



18. The great Level of the Fens, now called *Bedford-Level*, (the flattest and lowest Country possible) was anciently the Receptacle of the Waters of the Rivers *Nea*, *Ouse*, *Grant*, *Mildenhall*, *Branden* and *Stoke*, besides several other little Rivulets or Brooks out of the Counties of *Northampton*, *Cambridge*, *Suffolk*, and *Norfolk*; out of which several Counties, in wet Seasons, they conveyed down to this Fenny Country, vast Inundations of Waters, which spreading themselves over the whole Face of it, there stagnated through the exceeding Flatness thereof, for want of proper Channels, and sufficient Currents to convey them to Sea.

19. While the Fens were in this Condition, the Waters of the *Ouse*, *Grant*, *Mildenhall*, *Branden*, and *Stoke*, employed themselves mostly in that Part of the Fens which is now called the *South-Level*, and made it one entire Lake of Water, except some small Hills; on the largest of which, the Town of *Ely*, with some Villages stand; and which then made that little Country an Island.

20. At this Time the *Ouse* took its Course from *Erith*, (where it entered the Fens) to *Harrimere*, where it received the Waters of the River *Grant* from *Cambridge*, and then passed forward by *Ely*, *Littleport*, and *Denver*; and between those Places took in likewise the Rivers *Mildenhall*, *Branden* and *Stoke*; and from *Denver* it continued its Course down by *Lynn* to Sea, as it does at this Time.

21. At the same Time also the River *Nea* out of *Northamptonshire*, with other lesser Rivers it brought with it, entered the Fens at *Peterborough*, as it now does; concerning which I need observe no further, than to say that it divided it self, and spread its Waters over those Parts of the Fens, now called the *North* and *Middle-Levels*, and so completed the Drowning of this whole Country.



## ANSWER to the SCHEME.

These Demands of the Undertakers plainly shew, That the worst Part of the *South-Level* was not drowned above Three Months by the Winter Floods; and that this *Level* was good Summer Lands before any Undertakers meddled with it, notwithstanding the Flatness of the Country, and the round-about Course of the River.

And the numerous Petitions from the Owners and Occupiers of Land in the *South-Level*, (at the Time of the Undertaking) to the Parliament, set forth,

That the lowest Part of that Division of the Fens was not hurtfully surrounded Grounds, but such as have been beneficial to them by overflowing. — That the highest Part was Pasture for Sheep in the hardest Time of Winter, and was never drowned but upon extraordinary Wind-Catches, and then they reaped most Benefit from them the Summer following.

22. Here our Author owns, That the want of Embankments laid the Fens under Water. — Why then doth he not advise the Adventurers to embank? — Here he allows that the Mouth of the *Ouse* towards *Lynn* was in good Condition in those Times, which were before *Denver* Sluices and Strait Cuts were made; and since *Denver* Sluices and the hundred Foot have prov'd so prejudicial to Navigation and Draining — Why does he propose more Strait Cuts and more Sluices?

As the Author owns the Goodness of the Mouth of the *Ouse* toward *Lynn*, we must inform him too, that the Ship-Channels between *Lynn* and the Sea were also in so very good Condition, that it was half a Mile broad, and retain'd sufficient Depth at Low-Water.

That the River upward to *Salter's-Lode* was the same (until the erecting of *Denver*-Sluices, and the turning the River *Ouse* out of its old natural Chancel into an artificial, insufficient and shorter One.) — Thus far the Channels and Currents of the old Rivers were always owned to be sufficient: — At *Ely*, *Stretbam*, &c. there were Gravels indeed, that made the River shallow, and in many Places there were Weers, Stamps, and such like Stops to the Waters descending from the high Countries down this old River, while it subsisted: — And it was the Opinion of the then Commissioners of Sewers, and of the Industrious Mr. *Atkins*, of Sir *Clement Edmunds*, and of the Lord *Popham*, which last undertook the Draining, that had those Obstructions been remov'd, the Draining of the *South-Level* had been compleated, — For notwithstanding those Obstructions, the *South-Level* was good Summer Lands; and it was declared by *Westerdyke*, Lord *Gorges*, &c. that had they been embanked, they would have been good Winter-Lands. Therefore the Adventurers should have embanked the *Ouse*, and not sluiced it.

23—24. If instead of erecting the Sluices and cutting the 100 Foot, the Undertakers for Draining had remov'd the Impediments before-mentioned, and had made proper Embankments at a due and ordinary Distance, by humouring the old Course of the *Ouse* in its Twistings and Turnings, they had answer'd the Ends both of Navigation and Draining. Strait Cuts and Drains are proper only to convey the downfal Waters to the River; and therefore Rivers should be left as Nature hath made them, winding and turning through the lowest Part of the Countrey, and should not by Art be carried in strait Lines through the highest Parts: And fatal Experience hath shewn us, that such diverting an old River, and carrying it in a direct Line to its Outfall, did, whilst *Denver* Sluices were standing, silt up the Channel from those Sluices to Sea; And the Land-Floods (descending by the strait River over-riding the Waters of the natural Rivers of the *South-Level*) forcibly kept *Denver*-Sluice Doors shut for three Weeks or more together, penn'd them up, and caused them to overflow the *South-Level*; by which and other Inconveniences of those Sluices, great Part of the *South* Division of the Fens became over-flow'd as much as ever, during the Winter-Season; and the Summer and dry Seasons, (three fourth Parts of the Year) the Tides being shut out by *Denver*-Sluices from flowing up into their ancient Receptacles towards *Ely*, &c. the River between *Denver* and *Lynn* silted up for want of its former Weight of Backwater: By which it appears, that the *South-Level* was over flow'd in wet Seasons, whilst *Denver* Sluices subsisted. And the Consequence at present now to be dreaded is, the Continuance of the silting up of the River between the Remains of those Sluices and *Ely*, &c. to the Ruin of Navigation and Draining.

To so little Purpose were the Adventurers Works made, that they must desert them, as was foretold (by *Westerdyke* while making) dig out the old Course of the *Ouse*, and form Banks on each Side, if they would in good Earnest send their Fen-Waters to Sea.

To prove this, we need not only observe, That before the Sluices were built, the greatest Land-Floods went off the *South-Level* to Sea at farthest in three Months time; but since



Since they were erected, the Fen-Waters hardly get to Sea at all, nor ever will till they are restored to their old Course.

Further we say, That Banks set at such a great Distance as those of the Old and New Bedford Rivers are, are not proper; 1. Because a small Flood is lost in such a large Space, chutes, and wants Weight to grind out the Sand. This is altered by Water, and owned by Bedford and others. 2. Because when the Land-Floods descend in great Quantities with Violence, and the Space between Bank and Bank is filled with Waters, high Winds have happened, which by raising the Waves have shattered and broke those Banks, and over-flowed the Fens.

22. From this short Description it is very plain, that the low and flat Nature of that Country, and the round-about Courses of the old Rivers, with the Insufficiency of their Channels and Currents, and their want of Imbankments to confine the Land-Floods, were the Occasions of the then drowned Condition of it, notwithstanding the then good Condition of the Mouth of the *Ouse* towards *Lynn*; from whence I proceed,

23. To the principal Works done in that Country, towards the Draining of it; and to examine whether they were the most proper Methods to obtain that End.

The first great Work then, in conveying of such vast Inundations of Waters through a Country, where little or no Current can be had to help them forward, must be by proper Imbankments in the most direct Line, and nearest way possible to their Outfall, and joined to the Upland-Country, from whence they receive those vast Waters; and such Imbankments must be set so far asunder, as to form a sufficient Receptacle to contain the most violent and hasty Floods that may at any Time be expected, till there is Opportunity to convey them to Sea.

24. Upon this just Notion, the first great Work that was done towards Draining the Fen Lands, was the great Receptacle, called *Moreton's-Leame*, through which all the Upland Floods, and other Waters that descend out of *Northamptonshire* by the River *Neen*, have been confin'd, and kept from overflowing the Fens, and conveyed by *Wisbech* to Sea.



since they were erected, the Fen-Waters hardly get to Sea at all, nor ever will till they are restored to their old Course.

Further we say, That Banks set at such a great Distance as those of the Old and New *Bedford* Rivers are, are not proper; 1. Because a small Flood is lost in such a large Space, dilates, and wants Weight to grind out the Sand. This is asserted by *Wester-dyke*, and own'd by *Dodson* and others. 2<sup>dly</sup>, Because when the Land-Floods descend in great Quantities with Violence, and the Space between Bank and Bank is filled with Waters, high Winds have happened, which by raising the Waves have shatter'd and broke those Banks, and over-flow'd the Fens.

25. The intended nearest Way to convey the Floods to Sea is now become the farthest Way about; for since the blowing up of the Sluices, they flow up the *Ouse* and drown the Fens almost as far as *Harrimere*; whereas had the old Course of the *Ouse* been duly confin'd with Banks set at a convenient Distance, and had the Obstacles before mention'd been taken away, the Waters would have run swiftly in one united Body, and in one and the same Channel to Sea. But as to this Gentleman's Assertion, that between those two great Banks of the two *Bedfords* the Winter-Floods of the 100 Foot out of the Counties of *Buckingham*, *Bedford* and *Huntington*, have, ever since those Banks were made, been safely confin'd from over-flowing the Fens; we must tell him, that whoever was his Informer, has impos'd upon him most egregiously.

26. When the *Ouse* had its old natural Course by *Harrimere*, *Ely*, &c. the *South-Level* was drowned only as Meadows are along most Rivers part of the Winter. And the many Petitions to Parliament by the Inhabitants of the *South* Division of the Fens, Anno 1650, shew, Their Land was the better for being overflow'd by the Winter Floods, all the next Summer; and that they were never hurtfully overflow'd. — This Author owns, That since the Waters of *Ouse* have been turn'd out of their old Channel down the great Receptacle to *Denver*, &c. the Waters of the Rivers *Grant*, *Mildenhall*, *Brandon* and *Stoke* only, have laid great Part of the *South-Level* under Water, for no other Reasons possibly but these two; — “ 1. Its Outfall being near silted up. “ 2. The Tide-waters up that River repel those Freshes, and keep them back.” Here he contradicts himself, for in the same Article he says, — These River-Waters went united with the Waters of the great Receptacle to Sea. But this last Assertion is not true, for the Freshes descending the Hundred Foot Drain, or great Receptacle, did ever forcibly keep *Denver* Sluice Doors shut as afore-mention'd; so that the Floods descending the fore-mention'd Rivers, which have their Course through the *South-Level*, were thereby penn'd into that *Level*, and stopp'd from going to Sea, and forced to overflow it in Winter. — And in Summer, the *Ouse* below the Sluice toward *Lynn*, was so silted up, because the said Sluices hindered the free Admission of the Tides into their natural and usual Receptacles, that Low-water Mark was raised too high for the Waters of the *South-Level* to run off to Sea. And therefore they were overflow'd in that Division of the Fens by the first Floods that descended after *Denver* Sluices were built, and continued so, until they were blown up by the Tides from Sea. — And indeed so they have continued to be ever since those Sluices fell. — For the Land-floods descending the great Receptacle do not unite and go to Sea with the Water of the other Rivers, but take their Course through the Ruins of those Sluices, and not only overflow all that *Level* to a great Depth in Winter, but choak up with their Sullage the Rivers above the said Sluices so high, that Low-water Mark is near two Feet higher than the Soil of the Fens; in consequence whereof the Fens are constantly under Water, and the Navigation must be lost in a very short time. — And yet this Author declares in the next Paragraph, that those Works of the Adventurers which are the Cause of these destructive Effects to Navigation and Draining — are judiciously made.

27—28. We cannot but take notice, that in Article 21, he says, The dividing the River *Nene* drowned the Countrey; yet in this 27th, he says, 'Tis judicious to separate the Waters of Rivers. — But we say, the dividing and separating the Streams is the Ruin of the Channel and Outfall: And he implicitly owns it, for he asserts, that dividing the Streams was judicious, until the Increase of Sands stopp'd up the Outfalls; but it is prov'd, that before they were separated the Sands did not increase, and the Outfall



tail was good; therefore the dividing the streams was in great Measure the Cause of the Increase of Sands, which stopp'd up the Outfalls. — Of this Opinion is W. H. H. Esq. He says, "That Waters divided pass away very slowly, and in time stop their Channel."

As to the prodigious Expence of their Works, and the Assistance calling to their Assistance the most judicious Men of their Times, we own the said Works they made cost more than the Works they ought to have made to still the same would have done. — We also own, That they did call some judicious Persons to their Assistance; but we say they did not follow the Rules of Draining, laid down by the most judicious of them. — Sir Cornelius Vermeyden, the worst Adviser of them all, gave the

25. To the same Purpose (since that Time) to receive the Floods from the Upper Part of the *Ouse*, out of the Counties of *Buckingham*, *Bedford*, and *Huntington*, from *Erith* (at which Place the *Ouse* enters the Fens) to *Denver*, which is Twenty Miles, and the nearest way possible to convey the Waters to Sea, two Rivers, of One Hundred Foot Wide each, were cut in strait Lines, near Parallel to each other, and at a Medium of about half a Mile asunder; and with the Earth folding out, large and high Banks were formed, by which Means the whole Space of Land between the said Two Banks, became one great Receptacle or Canal: So that through one of these Hundred Foot Rivers, the Summer Waters of the *Ouse* might pass; and between these great Banks, the Winter-Floods of that River, out of the Three Counties last-mentioned, have ever since those Banks were made, been safely confined from overflowing the Fens, and discharged from *Denver* through the lower Part of the old Course of the *Ouse* to *Lynn*, and so to Sea; and to prevent these vast Waters from passing down the old insufficient unbank'd Course of the *Ouse* by *Harrimere*, *Ely*, &c. a Sluice was put cross the same at the *Hermitage*, near *Erith*, to stop the Passage of the Waters that Way.

26. These prodigious Floods (which when they passed down this round-about, insufficient, unbank'd old Course of the *Ouse*, by *Harrimere*, *Ely*, &c. in which Times, and for which Seasons, these Parts of the Fens were ever drowned) being thus safely conveyed down through this great Receptacle to *Denver*, the said old Course of the *Ouse* has ever since that Time been employed only in conveying the Waters of the Rivers *Grant*, *Mildenhall*, *Brandon* and *Stoke*, to *Denver*, where they join the other Waters that come through this great Receptacle, and so go united by *Lynn* to Sea. And it is well known, that this old unbanked Course of the *Ouse* was never sufficient to carry more Water than what it received from the Four last-mentioned Rivers, when it was in its best Condition; and much less now that its Mouth below *Germans* is near silted up; these very Waters of those Four Rivers only, having for several Years overflowed the said old Course of the *Ouse*, through which they should pass, and laid great Part of the *South-Level* under Water; and that for no other Reasons possible, than these Two; the first from its Outfall being near silted up; and the other, that the Tide-waters up that River repel those Freshes, and keep them back.

27. The separating and disposing the Waters of these several Rivers, in the Manner as before described, was certainly very judicious and effectual, until this prodigious Increase of the Sands brought up by the Tides, stopp'd up their Outfalls: And it may not be improper to observe, that these Works were a prodigious Expence, and executed by Persons of great Condition, and greatly interested therein, who called to their Assistance the most judicious Men of their Times: But it yet not sufficiently appearing by what



fall was good ; therefore the dividing the Streams was in great Measure the Cause of the Increase of Sands, which stopped up the Outfall. — Of this Opinion is *Westerdyke, &c.* He says, “ That Waters divided pass away very slowly, and in time lose their Channel.”

As to the prodigious Expence of their Works ; and the Participants calling to their Assistance the most judicious Men of their Times, we own the artificial Works they made cost more than the Works they ought to have made to assist Nature would have done. — We also own, That they did call some judicious Persons to their Assistance ; but we say they did not follow the Rules of Draining, laid down by the most Judicious of them. — Sir *Cornelius Vermuyden*, the worst Adviser of them all, gave the Scheme for the Works they made, and he said, “ As the Rivers of the *South-Level* fall cross-wise into *Ouse*, those Lands could not be made Winter Grounds by the ordinary Way of Draining ;” and therefore he advis’d them to sluice the Great River, and turn the Course of its Waters out of the old Channel down a strait Cut ; or rather he gave this Scheme to save, as he says, the Charge and Danger of a Multitude of Banks. For he owns the general Rule in Draining, and gaining of drowned Lands, was by embanking all the Rivers on each Side, &c.

*Richard, Lord Gorges*, Surveyor-General of the Fens, declar’d also in Writing, “ That it was ever his Opinion, the better way of draining the *South-Level*, was by Banks without any Sluices at all, according to the certain Rule of Draining, which is to embank all Rivers and Brook Waters ; and never to put Sluices upon such Waters as have a continual Body to preserve their Channels or Outfalls from filling up by Tides.”

*Edward Scotting*, a Person who serv’d the then Earl of *Bedford* in the Fens, said of *Vermuyden’s* Scheme, some time before it was executed, — “ I have declar’d my Opinion, and left it extant that future Times may witness that the Danger was discovered. For my own Part I am confident, that if this Design be pursu’d, what I have now written, (*i. e.* that they must be again deserted ) one Day by costly Experience will be found to be true.”

*John Barents Westerdyke* declar’d, (1650. to the Participants in Writing) “ That if *Ouse* had been confin’d to its old Channel by Banks, it had been a far better and cheaper Work ; and that Cut of *Bedford* River would have been of singular Use as a Capital both for draining and watering all that Part of the *Level* ; and it is a disputable Question, notwithstanding all the Charges bestow’d on the Banks of that River, whether it be not yet the best Course to desert it, and do the other Work.”

“ To set Sluices upon Rivers (continues he) is against the general Rules of Draining ; and I punctually aver, the intended Work is impossible to be done by Sluices.”

These are the Opinions of the most judicious Men of those times. — But the Adventurers did not follow these Opinions. — All these Artists declare, That embanking the Rivers is the known Way of Draining ; and all but one declar’d too, that it was impossible to drain by sluicing the River. And yet the Undertakers for Draining did not embank the Rivers, but (to save that Expence) built Sluices cross the great River, &c. and that too, notwithstanding the Corporations of *Lynn* and *Cambridge* foreseeing the evil Consequences, petition’d against them. — Notwithstanding the erecting such Sluices is contray to *Magna Charta*, and ten or more Statutes of this Realm made for avoiding all Obstructions in navigable Streams. — Notwithstanding the erecting such Sluices is contrary to the Act for Draining, *Anno* 1649 ; for the Words of the Act are, “ That *William*, Earl of *Bedford*, &c. shall cause the same to be drained and embanked, without Prejudice to Navigation, &c.”

Thus *Denver* Sluices were built, and this destructive Project was executed, against the Rules of Draining. — For the old Course of the *Ouse* was the most proper, as being the lowest and most natural Channel, to convey the Waters to Sea ; and the River *Ouse* was very capable of being embanked : For from *Erith* downward there were at that Time for the most part good Banks on each Side of the River, and the *Ouse* on the West Side has now a good Bank from *Littleport* quite to *Denver-Ferry*, and from thence on both Sides quite to *Lynn*.

And the same Materials that form’d them are still in Being, which mixed with the Silt that the River is now choaked with, will make good, solid, and firm Banks.

29—30—31—32. These Twistings and Turnings are the Case of every natural River in the World, and Nature we are apt to believe always designs the best, at least we can affirm she has done so for us. The Town of *Lynn* has already sufficiently suffer’d by the Undertakers strait Cuts ; and the Gentlemen of that Corporation hope they shall not have the same Art exercised over again, to the Destruction of Navigation upon that River. They



## 9

practicable at this Day.

grant that the English and French agreed that the

29. The first Thing I shall observe, in order to shew the Advantages obtained by deserting the old Course of the *Ouse* is, that the said old Course of that River is Forty Miles long from *Erih* to *Denver*; and in it there are many great Angles, or Turns; that Angle above *Harrimere*, is near Ninety Degrees, and several others of Forty Five Degrees, or better, besides a Multitude of lesser Turns; and I believe every body will



They had rather this Projector should try his Ability and Skill upon some other Port; perhaps the Merchants and Citizens of *London* would listen to him, should he harangue them in this Manner:

Gentlemen,

"You have vast prodigious Heaps of Sands at the Mouth of the *Thames*, and to prevent those Sands from choking it up, and also to preserve the Banks of the River from ever breaking again, I will make a Dam ten or twelve Miles above the Mouth of your *Thames* quite cross it: and to prevent the Tides from putting up into your River, and choking it up with Sand, I'll make a new Cut of 200 or 250 Feet wide in a direct Line from just above this Bank to fall into the *Medway* near *Sheerness*, where I will set down navigable Sluices, which shall shut out the Tides and hold up the Land-Waters; then as soon as the Tide is fallen off the Sands at the Mouth of the *Thames*, I'll open my Sluices and let out the fresh Water, which will run with so much Speed that it will certainly scour out the Sand and keep open a Channel to the Improvement of Navigation; and besides you will be great Gainers; for the old Course of the *Thames* below the Bank, will in time grow up and become firm Land.— There are also a great many Angles or Turns in the *Thames* above *London*, one near 90 Degrees, and several others of 45 Degrees or better, besides a Multitude of lesser Turns: And I believe every body will readily grant, that these Twistings and Turnings retard the free Passage of the Waters; to prevent which, and their overflowing great Quantities of Meadow in time of Floods, it would be of Service if there was made a strait Cut from *Windsor* to *London*, and desert the insufficient, unbank'd old Course: And if you'll consider further, you will find by these short Conveyances, the Current or the upland Floods will be doubled; by which means, together with their going that shorter way, the Waters will be dispatch'd with four times the Speed they can be the other way by the old Course of the *Thames*, and consequently by such Current and Speed the better qualify'd to preserve an Outfall to Sea.

How far such Rhetorick and Reasoning might prevail on the City of *London*, we leave it to every Body to judge; but if we may be permitted to give in our Conjecture, we believe the Citizens would never be induc'd by such Arguments as these to this way of thinking; The River *Thames* has hitherto been preserv'd in its Depth throughout to Sea, by the free and unrestrain'd Influx and Reflux of the Tides, ever since it was a River. — And so was our *Ouse*, until the Adventurers made a Dam cross it, and sluiced it. Therefore we must insist upon it to have the *Ouse* put into the same Posture it was in before the Undertakers Works were made; not doubting in the least, but that the same Causes will produce the same Effects again; that is, a deep Channel rightly adapted both to Navigation and Draining.

33. There were always Objections made to the sending the great Floods to Sea by the way of this Receptacle; viz. While the Sluices he mentions were standing, their Doors were kept shut by those Floods; so that no Water could run out of the *South-Level* to Sea, and therefore it became overflown. And though the Adventurers cut *St. John's Eea* from above *Denver* Sluices, to below *Stow-bridge*, at a vast Expence to flake the old Course, and gain a better Fall for the *South-Level*, yet in a few Years it proved ineffectual; for the River *Ouse* below the Sluices was choaked up too high for any Water to be convey'd out of that *Level* into it, occasion'd by this new Receptacle for the Floods, and by the Tides being shut out of their ancient Receptacles by *Denver* Sluices whilst they stood. — And we here cannot forbear saying, That it grates hard (as it looks like insulting us the Sufferers) to hear a Novice as to the Knowledge of our Port and the Rivers thereto belonging, making a flourish upon the Impossibility of these Waters having an awkward Course, during the Time *Denver* Sluices (which were the Occasion of the Rivers being silted up 10 or 12 Feet) subsisted; when in Fact and Truth those Waters which he pretends to send the shortest Way to their Outfall, would, as long as the World lasts, have gone off in their old Course, and preserv'd a deep Channel for ever, if *Denver* Sluices had not been erected. — Since the Sluices are blown up, the Waters of this Receptacle do, upon every Land-flood for three Weeks or more together, take an awkward Course (for the Word is still to be insisted on, it being true) viz. from *Denver* Sluices to very near as far as *Sobam-Meer*, and back again at least 40 Miles further out of their Way to the Outfall, than when they came by *Harrimere* their old Course. Which awkward Course of the Floods drown the *South-Level* before they can find their Way to Sea, and will by choking the River toward *Ely* in a very short Time, compleat the Ruin of Navigation, unless some remedy be applied. — And from the drowned Condition of the *South-Level* while *Denver* Sluices stood, and indeed of the *Middle-Level*, and of Marsh Land, and the Hundreds and Parts adjacent, and from the



will readily grant, that these Twilings or Turnings retard the free Passage of the Water.

30. But we find those Projectors rightly judg'd a shorter Course preferable, and deserted the old Course of the *Ouse* at *Brib*, from whence, as before observed, they begun the *Bedford* Rivers, and great Receptacle, and carried them in a direct Line to *Denver*, which is but Twenty Miles.

31. This great Receptacle therefore, going in a direct Line a shorter way to *Denver*, of but Twenty Miles, (and the way by the old Course of the *Ouse* being Forty Miles) these Upland-Floods must of Necessity from this single Advantage, of having through this Receptacle, not above one half of the Way to arrive at *Denver*, pass thither in one half of the Time they could do the other Way.

32. But if we consider further, we find by this short Conveyance, their Current is also doubled; by which Means, together with their going that shorter Way, their Waters are dispatched through the Fens with Four Times the Speed they could be the other Way, by the old Course of the *Ouse*, and consequently by such Current and Speed, the better qualified to preserve the Outfal.

33. There is indeed in that Scheme one Objection raised to the conveying these great Floods to Sea, by the way of this Receptacle; and that is, that some Part of their Waters return, (as 'tis term'd) in an awkward and unnatural Course, back again up the *Old Ouse*, towards *Ely*. But 'tis very plain, that this was no Fault or Imperfection in that Scheme, of sending these great Upland-Floods down that Receptacle, by the Provision that was made of the great Sluice at *Salters-Lode*, set cross the *Old Ouse*, to keep such Waters from so flowing up; neither did they ever do so, while that Sluice was Standing, and *St. John's Eea*, the Slaker to that old Course of the *Ouse* was kept open and useful; or before the lower Part of the *Ouse* was silted up Ten or Twelve Foot Perpendicular with Sands; or it's presumed it will ever again, after a proper Remedy shall be applied to these Grievances.



the bad State of the River *Ouse*, it is demonstrable no other Remedy than the old Course can be applied to these Grievances; and we are apt to think, that's the true Reason why this Gentleman has propos'd none.

34. We must here once for all let this Projector know, That *Lynn* has no Scheme or Projects. They desire nothing more than what God and Nature had given them; viz. the ancient Course of the *Ouse* by *Harrimere*: And as this Gentleman seems to question the Possibility of restoring it to its old Channel, we must give him to understand, that it is much easier and more beneficial to cleanse out an old River Twelve Miles in Length, for the good of Navigation and Draining, than it was for the Undertakers to cut out of the whole Ground a new one of one and twenty Miles long to the Detriment and Destruction of both. The rest is contrary to the Experience of many Ages before the strait Cut was made, and also contrary to Truth, for the River *Ouse* had a quick Current, especially from *Ely* downward: These his Assertions shew not only his wilful Forgetfulness of the crooked, yet rapid Course of most other Rivers, but also his want of understanding the Property of the Tides. Wherefore we shall say no more here but refer to Paragraph 12 for an Answer.

35. While the Tides from Sea had free Admission up the River *Ouse*, they in the Reflux kept the River, Haven and Chanel deep and open. The Moment *Denver* Sluices were built cross the *Ouse*, and the Tides were denied Admittance into their ancient Receptacles, the River, Haven and Channel began to fill up to the great Prejudice of Navigation and Draining. Therefore the not giving the Tides free Admission has been the Ruin of *Lynn* Harbour. See a fuller Answer, Paragraphs 5, 16, 17, 18, 19, 20.

36. The old Courses of these Rivers were very proper, being through the lowest Part of the Countrey, as Nature it self directed. — And we further say, Banks may be easily made where they are wanted, with the same Materials as those already made; and there is now good Silt to mix with such Materials. Which will make very good Banks.

37. The great embank'd Receptacles were injudiciously contriv'd for the Use intended. See Paragraph 23, 24, 25.

38. As to enlarging the lower Parts of the *Ouse*, it relates only to the Brushwood at the several Bridges; and we must still say, the greater the Indraught, the greater will be the Reflux, and the grinding out of the Silt to Sea will in Consequence be the greater: — This new *Bedford* River, this great Receptacle for the Freshes, never did preserve a tolerable Channel in *Lynn* Harbour or the Rivers, any longer than those Freshes lasted, (viz. a small Part of Winter.) Those spent and gone, then the Harbour and River filled up again with Silt immediately for want of free Admission to the Tides: But whilst the old *Ouse* had its full Sweep from *Eritb* by *Harrimere*, and so to *Lynn*, the Channel from Sea to *Lynn*, the Harbour of *Lynn*, and Channel up the Rivers, were always kept clean, and continually scour'd out to a very great Depth; therefore set aside your new *Bedford*, and your so much boasted of great Receptacle for the Freshes, and prepare the Way for the *Ouse* to take its old Course; and the Harbour, Rivers and Fens will soon feel the good Effects of so doing, by regaining the ancient Bottom of the Channels: But then we must acquaint this Author, that these continued good Effects never were, or ever can, be produced by the Freshes alone, whose Continuance is too short: But by the free Admission of the Tides into those great and good Receptacles, *Stoke*, *Brandon*, *Mildenhall*, *Grant*, and *Ouse* Rivers; These we say were the natural Receptacles which twice in every 24 Hours took in ten Times more Water from Sea, than our Authors great Receptacle was, or ever can be capable of admitting; and it is evident, the Reflux of these Tides thus admitted, was the principal Cause of the Goodness of all the Channels, which when by these means they are once restored to their ancient Depth, *Lynn* Harbour will never be filled up again, the Inland Navigation will be perpetuated, and Draining for ever become more certain.

We



34. From these Considerations on that Part of the *Lynn* Scheme, of turning the great Land-waters down the old Course of the *Ouse*, (was it possible to effect it) it evidently appears, would be turning of them out of a strait, safe, short Course, that has a tolerable Current to send them forward, to turn them into a crooked, round-about, sluggish, unsafe one, which must consequently be much longer delivering these Waters to their Outfal; and if so very much abated, their Power of scouring the Sands out of the Mouth of the *Ouse* and *Lynn* Harbour.

*The Amount therefore of all that has been said, and I humbly hope sufficiently proved, in the foregoing Part of this Report, is this:*

35. *First*, that the free Admission of the Tides up the River *Ouse*, above the Port of *Lynn*, has been (and if continued, will compleat) the Ruin of that Harbour, and of the River *Ouse*, and of such Part of the Fens that should drain through that River; and that they have also been the undoing of the River *Neen*, and the Fens that should Drain through it.

36. *Secondly*, That the old Courses of these Rivers were utterly improper; had it been possible to have Embank'd them for the Purpose of conveying these prodigious Land-Floods to Sea, which pass through the said Fen Country.

37. *Thirdly*, That the great Imbank'd Receptacles were judiciously made and disposed, considering their great Distance from their Outfals; and that they were the only Means possible of conveying these great Land-waters to Sea, and consequently of preserving the Fens, as far as could be thought absolutely necessary in those Times.

38. And *Fourthly*, From the Three foregoing undeniable Proofs, that the Scheme for enlarging the lower Part of the *Ouse*, and thereby sending up a greater Indraght of Tide-waters; together with the deserting the *New Bedford* River, and its great Receptacle, would soon by those Tides, fill up the small insufficient Outfal yet left, and thereby oppose their own Passage up the *Ouse*, contrary to the Expectation of that Scheme, and consequently stop the Freshes, which will irretrievably drown the Fens; and the Power of these Freshes being thus at an End, *Lynn* Harbour will immediately be filled up by Sand from the Bay, and the Inland Navigation from thence up the River, for ever lost.

If then for the foregoing Reasons, that Scheme ought to be rejected, some other Methods must be taken to reinstate *Lynn* Harbour, and Drain the Fens. I shall now proceed to shew what those Methods are, which, in my humble Opinion, will effectually accomplish that Noble Work of retrieving the former, and securing sufficient and lasting Outfal for the Waters of the latter.

*The Scheme in General is this:*

*First*, Not to admit the Tides to flow any higher up the River *Ouse*, than into *Lynn* Harbour. And,

*Secondly*, To Drain the whole Three Levels of the Fens through that Harbour, which may be performed as follows.



We must again observe, that Colonel *Armstrong's* Report is no Scheme or Project properly so called, but rather an Argument, shewing the Goodness and Excellency of the old natural Courses, which if restor'd would soon put every Thing into their ancient good Condition. Therefore this natural Method ought not to be rejected, and in our humble Opinions no other Method can be of Service. Mr. *Bridgman's* Project we have sufficiently proved will be pernicious and fatal to Navigation and Draining.

39. There has been already so much said against the making of Sluices cross the Old Course, that it is needless to say any Thing here against the making of a new River, and of a new Sluice cross it. — But as the Author of this Scheme seems to lay so much Stress upon the making a new River, about Three Miles in Length, from *Ebrink* to *Lynn*, and at its opening into *Lynn* Harbour to erect a Sluice cross it, and by a Dam to be made desert the old Course, and thereby execute a Scheme, which must prove more fatal to Navigation than *Denver* Sluices did, by depriving the Harbour of all the Receptacles it has for the Tides; and *Denver* Sluices we have already sufficiently demonstrated were the original Cause of all the Disorders that have since happen'd to Draining and Navigation: Therefore this Scheme would utterly ruin both, and that as soon as executed. For it is very plain, That he makes no Provision for deepening the River upwards from *Ebrink* to *Denver* Dam: If he says that the Freshes or Land-floods will scour out that Part of the River; — We reply, They neither will nor can, for that they will certainly take their awkward Course up toward *Ely*, as hitherto ever since the Fall of the Sluices they have done: And it is manifest, if that Space (which is nine Miles long) be not deepen'd, there can be no Draining nor Navigation. For there is such a Descent from *Salter's* lode to *Lynn*, that Water can't be penn'd up high enough for Navigation, the Bottom of the River upward being higher than the Soil of the Fens, in consequence whereof the Fens too must continue drowned after this Scheme is executed; and therefore should it be put in Practice, the Work must, in a short time after, be taken in Hand again after the Expence of many Thousands of Pounds in a very fruitless Manner, by proceeding from bad to worse; whereas the good old Method (formerly Nature's own Direction and Choice, and now proposed by Colonel *Armstrong*, His Majesty's Engineer-General) will, if executed, at a small Expence render both Navigation and Draining certain.

And as to the gaining of so much Marsh ground (as is proposed) in the old crooked Course between *Ebrink* and *Lynn*, if that should grow up in the Manner proposed, the Channel from *Lynn* to Sea-ward would soon grow up also; for it is demonstrable, the Indraught of this broad crooked River has been the only Preservative of the Channel of *Lynn* to Seaward, since the erecting of *Denver* Sluices, which notwithstanding could not prevent its being narrowed from half a Mile, to half a Furlong in Breadth, within a short Time after the Undertakers had finished their Works, as is fully prov'd in Mr. *Goddard's* State of the Navigation of *Lynn*: We say it is demonstrable the Indraught of this broad crooked River has been, and is the only Preservative of the Channel of *Lynn* to Sea-ward; because *Ostend*, and several Harbours Abroad, are kept open by such Indraughts for the Tides; because *Portsmouth*, *Parmouth* and several Harbours at Home are kept open by such Indraughts for the Tides.

And because *Ostend* did decay when some Marshes were embanked, and the Indraught was lessened; until those Banks were destroy'd, and the old Indraught was again recovered.

And because *Rye*-Harbour, &c. has decayed by having such Indraughts taken away by Inners of Marshes. And we say, if private Men, to get a little Land, may be guilty of such Encroachments, all our Ports may be ruin'd in time, in the same Manner that *Lynn*, *Wisbeck*, and *Rye* have been.

40. This does not relate to *Lynn*, though much might be said to shew this Scheme Impracticable.



39. The first great Work in this Scheme, will be to make a new Mouth to the River *Ouse*, in a direct Line from *Ebrink*, below *Germans*, to *Lynn*, of Two Hundred, or if it shall be found necessary, Two Hundred and Fifty Foot Wide; and at a proper Distance near its Opening into *Lynn Harbour*, to erect a great Sluice cross it, of the same Kind, but proportionably stronger, than that which was at *Salters-Lode*; together with a proper Navigable Sluice, for the Purposes of Inland Navigation. This new River will be but Three Miles Long, and will open it self into the Tail of *Lynn Harbour*, in the same direct Line that Harbour opens it self into the Bay; whereas the old wide indirect Sandy Course of this River, from *Lynn* up to *Ebrink*, is full Seven Miles. And here I observe, that the *Eastern Bank*, or Border of this old Course, down to *Lynn Harbour*, is all a strong Loam, or rather Clay; and this Soil is so tough at the upper End of that Harbour, where this new Mouth of the *Ouse* will enter it, that the Tides can make little or no Impression on it; which I mention only, to shew that there will be very good Foundation for such a Sluice: This being done, a Bank must be made cross the old Course of the *Ouse* at *Ebrink*, (the Place where the new River begins) to send the Freshes down the said River, and to stop the Tides from going up, by which Means the old broad deserted Course between *Ebrink* and *Lynn*, will by Degrees silt up, and become good Marsh Land.

44. We must repeat it, that the River from *Ebrink* up and can never recover its former by this Scheme; and so we may for ever bid adieu to the running of the River into the River, and of Navigation up the River.

45. We have answered this already by shewing, that the Land-flood down the River and Foot Cut, will, as they were accustomed to do, take an awkward and a wrong Course towards *Ep*; and thereby will overflow the Fens of the *Sand-Lake*, and will be longer several Weeks, nay Months, before any of them can be delivered to Sea; than if they are turn'd down their old natural Channel as proposed, by *Hawes*, *Ep*, &c. For then they will force their Way to Sea, recover the ancient Depth of the *Ouse* upward between *Dunbar* and *Ep*, and downward to Sea.

46. We say that the additional Receipts from *Salt-lake* to the sluice at *Lynn*, will render the *Sand-Lake* incapable of Draining, and also all *Marsh-land*, and the *Hundred* and *Parts* adjacent.

40. The Second great Work will be to bring the River *Neen* also into this new River, or Mouth of the *Ouse*, by a strait Cut or Canal, of one Hundred Foot Wide, from *Wisbech*, through *Marsh-Land*, which will be about Eight Miles, and to deliver it into the upper End of this new Mouth of the *Ouse*, somewhere near *Germans*. This Cut may be made either from just above the Town of *Wisbech*, if they shall chuse to reserve the old Mouth of the *Neen* between it and the Bay, to Navigate by the Tides to that Town, till such Time as the Sea has quite silted it up, which will not be long: Otherwise this Cut may be begun from below that Town, somewhere near the *Horse-shoe*: And when this new River shall be completed either of the abovesaid Ways, a Bank must be also made cross the old silted Course of that River, that thereby the Freshes may take their Way through the new.



41. *Lynn* concerns not it self with the *North-Level*. They that do concern themselves, know that that *Level* can be no more drained by the Sluices propos'd by this Projector, than the *South-Level* was by *Denver* Sluices : But we are beholden to him for letting the World know the *Soak* of the *Middle-Level* was carried off before their Sluices at *Well-Creek*, &c. were filted up ; i. e. before *Denver* Dam was made cross the *Ouse*.

Which is negatively owning, That that Dam was the Cause of such filting up. — And yet he proposes another Dam.

42. If downright palpable Mischief may in Propriety of Speech be term'd Advantage, then the Advantage to *Lynn* Harbour will be, that it will filt up at the Entrance of this Sluice just as it did before that of *Denver* ; neither will the Tides flow higher, or faster, or purer.

We have prov'd (Paragraph 39.) that there can be no Inland Navigation, if these Sluices now propos'd be built ; and the Effect *Denver* Sluices had on the Haven and Channel, demonstrate that *Lynn* Harbour and the Channel to Seaward will grow up in one Year after these Works are executed, and the Consequence of that must be the Loss of Navigation and Draining.

43. If our Author means the Freshes in wet Seasons, which come down the Hundred Foot, we say they can have no Weight at all from the Ruins of the old Sluice down to the new projected one ; because they will take their Passage through the Remains of *Denver* Sluices toward *Ely*, according to Custom : And thus it is plain, these Freshes can be of no Service in clearing out the Bottom of the River between *Salters-lode* and *Ebrink* : Neither can he be assured that the Freshes down his new *Neen* will or can be uttered in due Time through his new Sluices ; we say it is impossible they should, and that they will endanger Marsh-Land. For the Tides will oppose them by keeping the Sluice-Gates shut (as *Westerdyke* observ'd of *Denver* Sluices.) And the Harbour being filted up, will very much contribute to this Opposition, as it happen'd continually at *Denver* whilst those Sluices subsisted. So that this Scheme will destroy Navigation and Draining in general.

44. We must repeat it, that the River from *Eabrink* upward can never recover its Bottom by this Scheme ; and so we may for ever bid adieu to the running of the Fens-Sluices into the River, and of Navigation up the River.

45. We have answered this already by shewing, That the Land-floods down the Hundred Foot Cut, will, as they were accustomed to do, take an awkward and a wrong Course towards *Ely* ; and thereby will overflow the Fens of the *South-Level*, and will be longer several Weeks, nay Months, before any of them can be delivered to Sea ; than if they are turn'd down their old natural Channel as propos'd, by *Harrimere*, *Ely*, &c. For then they will force their Way to Sea, recover the ancient Depth of the *Ouse* upward between *Denver* and *Ely*, and downward to Sea.

46. We say that the additional Receptacle from *Salters-lode* to the Sluice at *Lynn*, will render the *South-Level* incapable of Draining, and also all Marsh-land, and the Hundreds and Parts adjacent.

47. We prov'd in the former Articles, that the Freshes alone never did, nor ever can, maintain a deep Channel throughout, which the free Admission of the Tides we have demonstrated ever did. Therefore the executing this Project can never open and preserve a wide and deep Channel, but on the contrary will make it narrower and shallower to the great Prejudice of Navigation. — And as to Draining. — When the fresh



41. The Third Work will be the Draining the *North-Level*; and this will be effected by a sufficient Cut from *Clows-Cross*, in a direct Line, to *Wisbech*, which is about Four Miles and an Half: And there to join the new River, or Cut, from thence to *Germans*; and at the farther End of this Cut from *Clows-Cross*, where it enters the *Nean*, to put a Sluice cross it, to prevent the Floods of the *Nean* from entering the *North-Level*, by which Means the Soak of that Level will be carried off, in the same Manner as the Soak of the *Middle-Level* was, before their Sluices at *Well-Creek*, &c. were filted up; and as that Level will be again, when the Channel of the *Ouse* is recovered.

*The Principal Advantages that will attend this Scheme, if executed, are as follows:*

42. The first Advantage is this, That the Tides having now no Way to pass up the Mouth of the *Ouse* higher than into *Lynn Harbour*, they will swell a great deal faster than they could do, while they were admitted to pass so many Miles up that River, and consequently bring their Waters purer up into that Harbour.

43. The Second is, That the Tide-waters being thus shut out, the Freshes, in wet Times, when they come to have Weight, and no Opposition to their Free-passage down to this Sluice, will soon clear out the Bottoms of these Rivers, where they are filted up, and preserve them so.

44. The Third is, That the Tide-waters being shut out of these Rivers, and they having recovered their Bottoms, the Fen Sluices on the Sides of them being opened, will silt no more.

45. The Fourth Advantage is, That the Freshes now not being repell'd, or drove back by the Tides, as heretofore, will pass down to this Sluice, to be delivered to Sea much quicker, and in much greater Quantity, than they could do while their Outfal was filted up, or while they were so opposed by the Tides.

46. The Fifth is, That these great additional Receptacles for the Freshes, viz. that of the lower Part of the *Ouse*, from *Lynn*, up to *Salters-Lode*, and higher, (which used to be employed by the Tide-waters) and the *New Nean*, from *Wisbech* to *Germans*, by which the Freshes will be brought down, and lodged quite Home to their Outfal, will keep the Floods from swelling but very little, or lying long in the great embank'd Receptacles above, or in the old Course of the *Ouse*, and so consequently those Banks will be of little Use, or danger of breaking, and the Fens, thereby, of being Drowned; and the Fen People will have it in their Power to draw off their Soke into these Rivers, at all Seasons in the Year.

47. The Sixth, or great Advantage hereby to *Lynn*, is, That the vast Stores of Freshes of these united Rivers, being brought down to the very Tail of *Lynn Harbour*, and their riding within their Sluice in wet Times, Ten or Twelve Foot deep in Water, and that above the now Bottom of that Harbour, (filted up as it is) and these vast Stores being discharged through their Sluice, at the Tail of every Tide, when the Bay,

or



fresh Waters rise 10 or 12 Foot deep within the Sluice, they'll be above the Soil of the Fens, and of all the Country, and consequently drown them.

And the Waters must be held up so high for Navigation, if any can be maintain'd, that they'll be above the Soil of the Fens, as now they are, and render them incapable of Draining.

48. We do not concern our selves with any River or Port but our own.

49. We hope we have now sufficiently prov'd, That the only Way of restoring *Lynn* Harbour, is to give the fresh Waters their ancient natural Course, and the Tides free Admission into their ancient natural Receptacles; and when this is done, according to Colonel *Armstrong's* Report, ——— The Freshes of the next Winter will gradually scour out the Sands, which now choak up the River, Haven, and Channel; with great Effect; by this Means the Spring Tides will the next Summer put up great Quantities of Waters into all the Rivers, which followed in their Reflux by the fresh Waters, will, with their Weight and Power continually carry out with them great Quantities of Silt to Sea; so that the Freshes of the succeeding Winter will, it is very natural to believe, in a short Time drive out and clear the River, &c. of the remaining Silt and Sand. ——— Thus as the said River, Haven, and Channel were filted up, ruin'd to Draining, and rendered very precarious to Navigation, in two Years after *Denver* Sluices and the Hundred Foot Drain were made;

It is not unlikely that after the Tides and Freshes have their old Courses given them, they will in a great Measure reinstate the River, Haven and Chanel in their ancient Depth in Two Years Time. By which, Navigation, as well as Draining, will be absolutely restor'd, and that for a quarter Part of the Expence of executing the Scheme or Project of Mr. *Bridgman*, which we have sufficiently prov'd to be destructive to both.

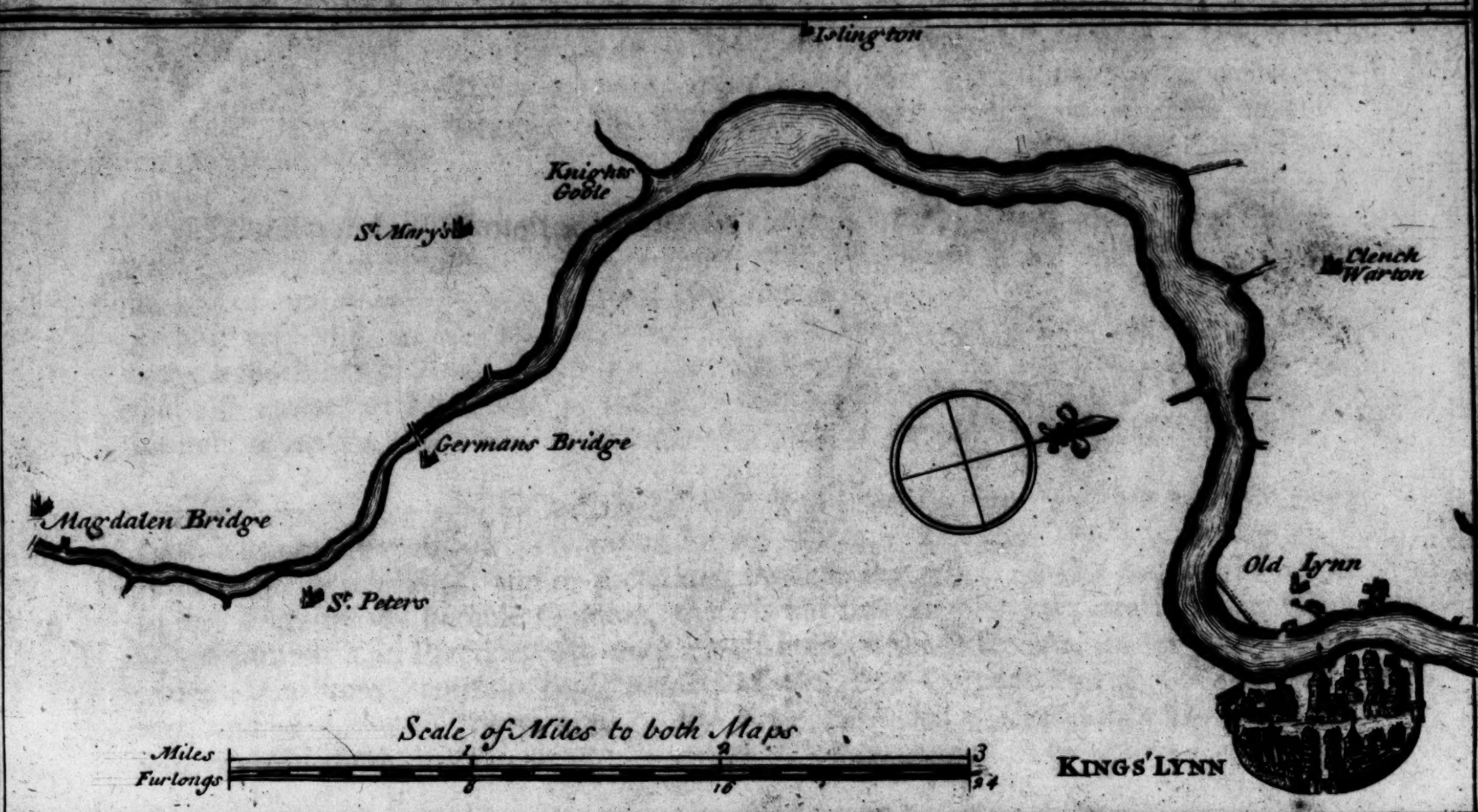
When these Freshes are discharg'd through the Sluice, (no Navigation can be had; witness *Denver* Sluices) they'll gull and undermine the Sluice, and like the Waters from a Mill will make a deep Hole just under the Sluice, throw up a Bar of Sand just beyond, then spread, run shallow, and have but little Weight and Force to grind while the Freshes last, which will be but a few Weeks. — All the Remainder of the Year there will be no fresh Water at all let through the Sluices to scour, for the Tides not being admitted, the Fresh Waters must be held up for Navigation.

As to taking in Tide-Waters to scour; it shews this Author has not rightly digested his own Scheme, for his first Paragraph (Article 39.) is for a full stop to the Tides; yet here is for admitting them in Part.

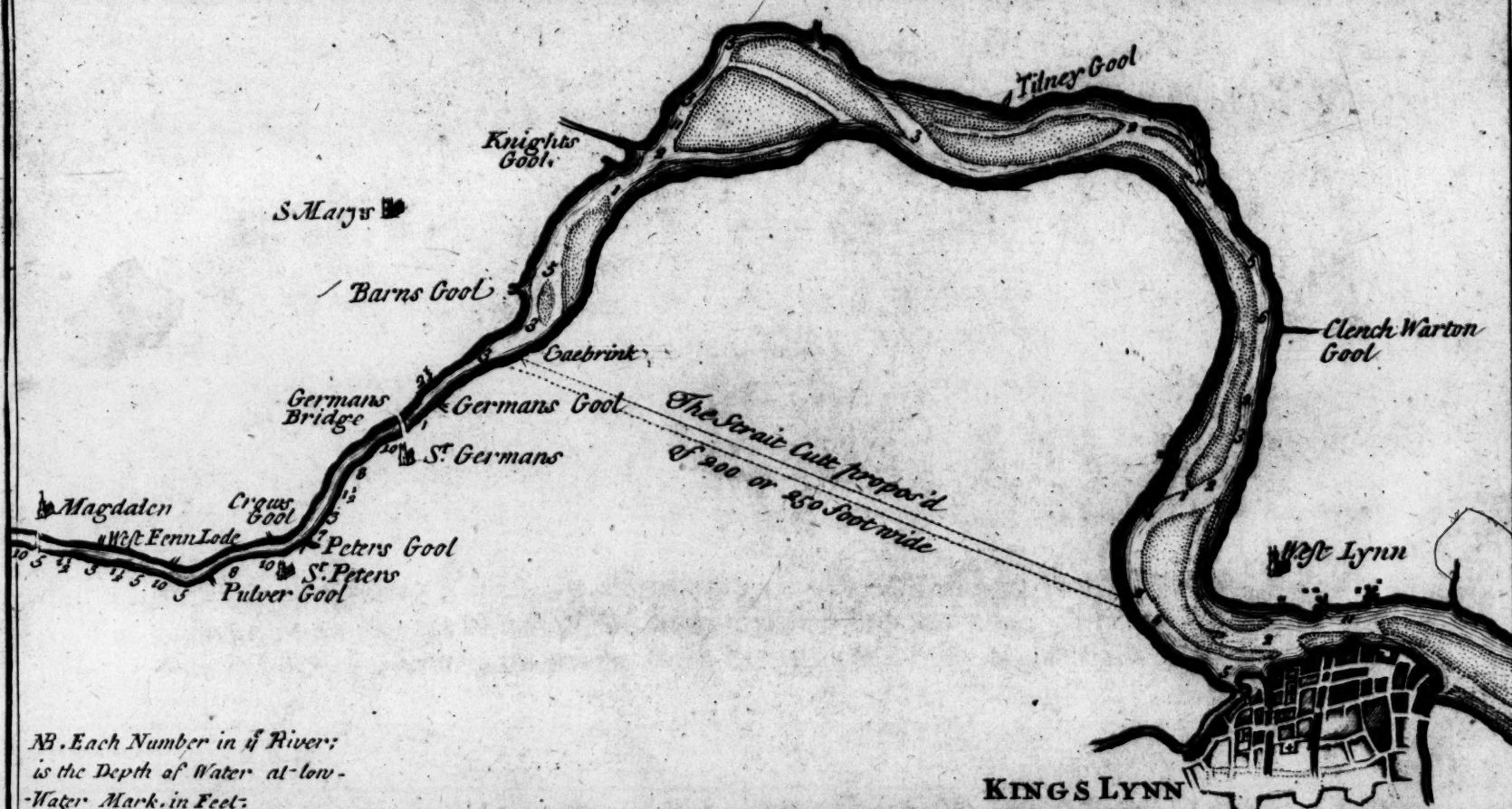
By what has been said it plainly appears, That the Proposal offer'd by Colonel *Armstrong* for the Recovery of Navigation and Draining, may obtain by assisting Nature only in turning the *Ouse* at *Eritb* into its old Course again, whereby the Weight of the Freshes this Way (which is sufficiently proved to be the shortest) join'd to the Reflux of the Tides, will be continually active in scouring and cleansing the River downwards. Whereas the Scheme propos'd by Mr. *Bridgman* is to forsake the beaten Path pointed out by Nature, and be at a vast Expence to prevent it; and when that is done (which is to be hoped never will) the Work must be taken in Hand again, just as it now happens after the Practice at *Denver* and *Eritb*.



A Map of LYNN-HAVEN, & of the River Ouse to Germans. Survey'd by W<sup>m</sup> Haywood A.D. 1667

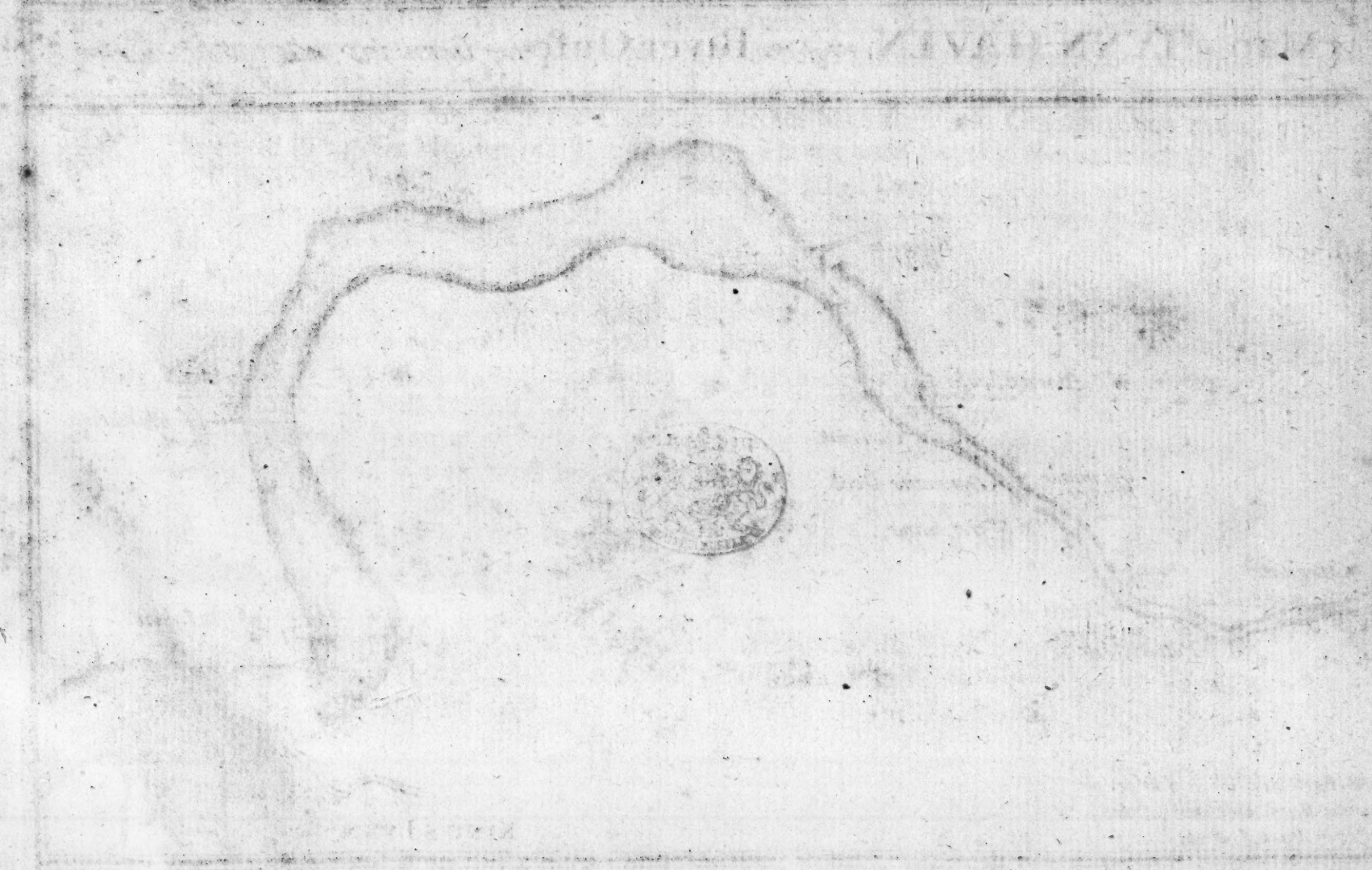
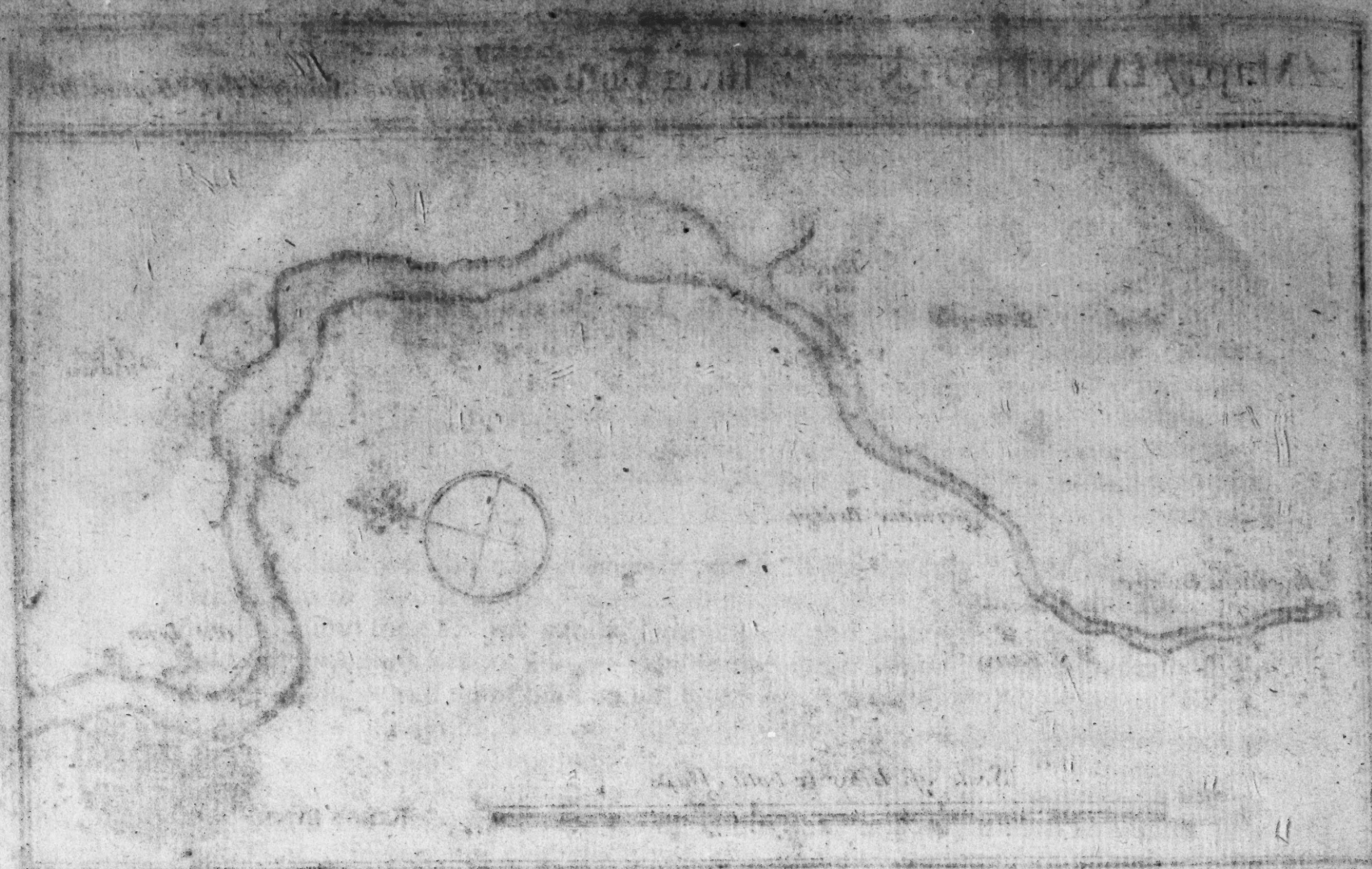


A Map of LYNN-HAVEN, & of the River Ouse to Germans, made by J. Badeslade A.D. 1794



Some People maintaining that the Width of the River between Lynn & Germans is the cause of its Shallowness and is prejudicial to Navigation & Draining, & as a remedy have propos'd deserting that Course & to make a strait narrow Cutt from Germans to Lynn; these Maps are laid down by the same Scale to shew that y<sup>e</sup> River was in some places as wide 120 Years ago when it was deep, as now it is shallow. The Riv<sup>r</sup>. Ouse, Lynn-hav<sup>r</sup>. & y<sup>e</sup> Channels to Seaward did actually grow wider & deeper gradually for 800 or a 1000. to y<sup>e</sup> very time Denver Sluices were Erected, & they being choaked up immediately after they were Built, so that Navigation & Draining were very much prejudic'd. it is Demonstrable those Sluices were y<sup>e</sup> cause, & not the Width of y<sup>e</sup> River betw<sup>n</sup> Germans & Lynn. The Great Depth of the Channels at Low-water in the Thames, Severn & Humber either of w<sup>ch</sup> Rivers is near 10 times wider y<sup>e</sup> Lynn Hav<sup>r</sup>. at the same distance from Sea shew y<sup>e</sup> the width of a River is not the cause of Shallowness in the Channel but naturally the means of its Deepning it. So y<sup>e</sup> had not Denver Sluices been Erected the Channel of y<sup>e</sup> Riv<sup>r</sup>. Ouse would have been much deeper now than it was 120 Years ago & been compleat for Navigation & Draining. If the wide River betw<sup>n</sup> Germans & Lynn should be deserted the Channel to Seaward will immediately be choaked up, & become as difficult to Navigation as is Mydech Channel & Draining will be wholly lost.





Below the map, there is a section of text, which appears to be a description or a list of items. The text is written in a cursive or handwritten style, typical of historical documents. It is organized into several lines, with some words appearing to be in a different language or script, possibly Spanish or Portuguese, given the historical context of such maps.



or Wash, is pretty well emptied of its Tide-waters, will, I humbly conceive, in a very little Time, by their prodigious Weight and Force, effectually scour the Silt out of that Harbour, and open a wide and deep Channel through the said Wash, into the Deeps, and ever after maintain it so. And if ever in any Times, any Sands should be brought up with the Tides out of the Bay, so as to incumber the Harbour, through the want of a Weight of Freshes in such Times to return them back, the Tide-waters, when they have swelled to such a Height in the Harbour, as to come in purer from Sea, may be let into the *Ouse*, by Provisions made in the upper Part of the Tide-Gates and Sluices for that Purpose; and with its Freshes there confined, and with them returned at the proper Time of Ebb.

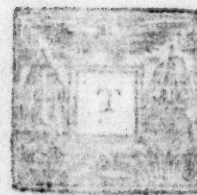
48. The Seventh Advantage by this Scheme is to *Wisbech*; which Town now having other Navigation for small Vessels thither, than by Spring Tides up the old silted Mouth of the *Nean*, (which 'tis much to be feared, will in a very few Years be quite stopp'd up) will, by the Advantage of this *New Nean*, from thence to *German's*, acquire a much better Navigation, than they have at this Time, and that a lasting one; and also upward to *Peterborough*, and into *Northamptonshire*, which will otherwise be all lost, when the Tides have compleated the Ruin of the old Mouth of that River.

49. I hope I have now sufficiently proved, that there is one way left of restoring *Lynn Harbour*, securing a Navigation to the Town of *Wisbech*, and of securing the great Level of the Fens, and of preserving them to Posterity. And I beg Leave here to say, that, in my humble Opinion, there is but this one way left; and that the Delay of putting it in Practice, will very much increase the Difficulty, as well as the Expence: And from thence the true Interests of the Two Corporations of the Adventurers, and of *Lynn*, fully appear to be the same; and that the executing this Scheme, will establish them so.

A N D

Amending the Harbour of Lynn

And being that the Request of the Right Honourable the Earl of Lincoln, viewing the Fens in those Parts, to find out the true Cause of the Difficulty in draining a great Part of those Fens, very much incumbered with Water, I did apply my self to try actively to discover that Cause also.



Thus, my Lord, I have, in Obedience to your Lordship, faithfully delivered my Sentiments of this great Affair; heartily wishing that in this, or in any thing in my Power I may be serviceable to the Publick, and acceptable to your Lordship.

I am,

My LORD,

Your Lordship's most Dutiful,

and Most Obedient Humble Servant,

H.

Charles Bridgman





Colonel **ARMSTRONG'S**

**REPORT,**

**WITH**

**PROPOSALS**

**FOR**

**Draining the FENS,**

**AND**

**Amending the HARBOUR of LYNN, 1724.**

**SIR,**



**THE** Harbour of *Lynn* being almost choaked up with Sand, and in great Danger of being totally lost, I have according to your Desire viewed the same, in order to find out the true Cause of such visible Decay of so useful and beneficial a Harbour in that Part of the Kingdom.

And being then at the Request of the Right Honourable the Earl of *Lincoln*, &c. viewing the Fens in those Parts, to find out the true Cause of the Difficulty in draining a great Part of those Fens, very much incommoded with Water, I did apply my self very attentively to discover that Cause also.

In my Perambulation to these Purposes with several Gentlemen of that Country, I have discovered the true Cause of both those great Evils, *viz.* That for a considerable Time past, there hath not been a sufficient Indraught for the Tides to flow up the *Ouse*, as they formerly did, for many Miles together, into that River and the other Rivers that fall into it below *Ely*. By means of which, upon their Reflux, it being always half Ebb at *Lynn* before it has done flowing at *Salter's-Lode*, these Tides constantly returning by a narrow Channel, continually scour'd out the Sands in the said River, and preserved a Channel, I am sufficiently informed, ten Foot deeper than it is at this Time.

Then as to the Land-Floods or Freshes that come down in the Winter, which greatly help'd formerly towards the Preservation of the ancient Depth of Water in the River *Ouse*, they being now turn'd out of the said River, their natural Channel, down the new *Bedford* River, or Hundred Foot Cut, has, as largely as the above-mention'd Want of an Indraught, contributed to the Spoiling of the said River; by the awkward and unnatural Course those Waters constantly take upwards to *Ely*, and into the *South-Level*, instead of running out to Sea; and thereby carrying with them such a prodigious Quantity



Quantity of Silt and Sand, that the said River is now become much Shallower upwards between *Denyer* and *Ely* than it formerly was. Inasmuch, that if these two Evils are not speedily remedied, the draining of that great Tract of Land, the within-Land Navigation of the Country, as well as the Port or Harbour of *Lynn* will be entirely lost.

Having thus pointed out the two great Causes so destructive to Draining and Navigation; and further, as it is very evident to any impartial Enquirer, that Draining and Navigation have so close a Connexion the one with the other, that the one cannot subsist without the other;

I come now to propose a Method whereby both those Evils may be effectually cured viz. All the Fens in general drained, the within-Land Navigation and the Harbour of *Lynn* preserved and amended.

Finding the River *Ouse* to be, as ordained by Nature, the great Drain of all that Part of the Country; I did the better to satisfy the Corporation of *Lynn*, as well as the Corporation of Adventurers, whose true Interests are inseparable, especially as to the Draining and Navigation, direct an exact Survey to be made of the said River, from *Erith* to *Lynn*, including that Harbour, and a great Tract downwards to Sea.

Besides this, I directed that several Maps and very accurate Surveys of the ancient and present State of the Fens should be fairly copied; and also that as exact an Account as could be collected from authentick Records, as well as from Observations lately made upon the Spot should be drawn up, of the ancient and present State of the Navigation, and draining of the Fens by the said River. And further I directed the Motions of the Tides to be observed for a considerable Time together; as also the Motions of the Land-Floods or Freshes: And having these Materials by me, they serve to confirm my Judgment, as I hope they will that of all Persons concern'd, that there is no other Means can be so effectually used to regain the ancient Depth of the *Ouse*, and thereby recover the Navigation thereupon, as well as that of the Harbour of *Lynn*, and effectually drain the *Bedford* Levels, which are so much in Danger of being totally lost, as this which follows, viz.

I. To open the old *Ouse* from *Harrimere* to *Hermitage* near *Erith* to its ancient Breadth and Depth, and with the Earth that comes out of it, form Banks on the Sides thereof, to prevent the Land-Floods or Freshes overflowing the adjacent Lands in the Winter.

II. To remove the Gravels near *Strettham*, or where-ever else they are to be found in the River *Ouse*; as also all other Impediments: To the End the Land-Floods, whenever they descend, may find a quick Passage to Sea, and carry off all the Silt and Sand they meet in their Way.

III. To take up the Remains of *Denyer* Sluices, or make a new Cut just by them, to render the River (now but Eighty Foot wide) in this Place 150 Foot wide, as it formerly was; so that the Tides may have full Liberty to flow up by the *Ouse*, into their ancient Receptacles, viz. the Rivers *Stoke*, *Brandon*, *Mildenhall* and *Grant*, which will contain a sufficient Indraught of *Backwater* for deepening the *Ouse* upon its Return, and thereby restoring its Navigation within-Land, as well as giving the Land-Floods, when they descend, a swifter Passage to discharge themselves by the Port of *Lynn* into the Sea.

And that this may be the more effectual, it will be necessary,

IV. To make the River *Ouse* as wide as it was ever known to be at each of the Bridges now subsisting at *Downham*, *Stow*, *Magdalen*, and *Germans*; by taking away the Brushwood, &c. put down to narrow it at these Places.

V. To take up the Sluice or Sals now at the *Hermitage* upon the River *Ouse* near *Erith*. And if it should be thought necessary, to set it again in the new *Bedford* River, or 100 Foot Cut near the *Hermitage*, for the Benefit of Navigation, and thereby to send the Land-Floods down the River *Ouse*, their natural Channel: which must as aforementioned have a good Effect, and prevent their descending for the future by the new *Bedford* River, and running unnaturally as they for some Years past have been observed



# Colonel ARMSTRONG'S Report.

to do for many Days together, in the great Damage of the River Ouse, and if not timely remedied, will be the total Destruction of Navigation upon that River, and the other Rivers upwards towards Cambridge, at already that of Draining.

By this Method I am humbly of Opinion, that the Land Floods or Freshes being turn'd into the River Ouse, their natural Channel, joined to the Reflux of the Tide, which will now have a much larger Indraght for a back Water than it has had for many Years before, will infallibly deepen the Ouse in a very little Time to its ancient Depth, by driving out to Sea the Sand and Silt, by which it is now very near choak'd up, and thereby not only render all the Fens capable of being drain'd effectually, but all the Rivers that fall into it, will be by being deepened, made capable of carrying as large Barges or Boats as ever they did heretofore.

And it will deepen and clear out the Haven of Lynn, and their Channel from thence down to Sea. I am with the greatest Respect,

Part of the Country; I did the better to satisfy the Corporation of Lynn, as well as the Corporation of Adventurers, whose true Interests are inseparable, especially as to the Draining and Navigation, direct an exact Survey to be made of the said River, from Bait to Lynn, including that Harbour, and a great Tract downwards to Sea.

Besides this I directed that several Maps and very accurate Surveys of the ancient and present State of the Fens should be fairly copied; and also that an Account as could be collected from authentic Sources, as well as from Observations lately made upon the Spot should be drawn up, of the ancient and present State of the Navigation, and draining of the Fens by the said River. And further I directed the Masters of the Tides to be observed for a considerable Time together; as also the Motions of the Land Floods or Freshes: And having these Materials by me, they serve to confirm my Judgment, as I hope they will that of all Persons concerned that there is no other Means can be devised to recover the Navigation thereupon, as well as that of the Harbour of Lynn, and effectually drain the Bedford Levels, which are so much in Danger of being totally lost, this which follows.

May 12. 1724.

I. To open the old Ouse from Havering to Havering near Bait to its ancient Breadth, with the Earth that comes out of it, form Banks on the Sides thereof, to prevent the Land Floods or Freshes overflowing the adjacent Lands in the Winter.

II. To remove the Gravels near Havering, or where ever else they are to be found in the River Ouse; as also all other Impediments: To the End the Land Floods, whenever they descend, may find a quick Passage to Sea, and carry off all the Silt and Sand they meet in their Way.

JOHN ARMSTRONG.

III. To take up the Remains of former Sluices, or make a new Cut just by them, to render the River (now but Eighty Feet wide) in this Place 150 Foot wide, as it formerly was; so that the Tides may have full Liberty to flow up by the Ouse, into their ancient Reception, viz. the Rivers Stort, Great Ouse, and Great Ouse, which will contain a sufficient Indraght of Backwater for deepening the Ouse upon its Return, and thereby restoring its Navigation within Land, as well as giving the Land Floods, which they descend, a better Passage to discharge themselves by the River Ouse into the Sea.

To the Right Honourable  
ROBERT WALPOLE, Esq;

And that this may be the more effectual, it will be necessary,

IV. To make the River Ouse, as far as it was ever known to be at each of the Bridges now subsiding at D. and G. and by taking away the Brinkwood, or put down at these Places.

V. To take up the Sluice or Gate now at the Havering upon the River Ouse near Bait. And if it should be thought necessary, to let it again in the new Backwater, or too short Cut near the Havering, for the Benefit of Navigation, and thereby to send the Land Floods down the River Ouse, their natural Channel, which must be enlarged and have a good Effect, and prevent their descending for the future by the new Backwater River, and running unassisted as they for some Years past have been obstructed.